

# Dare to be Different

Looking for something special and out of the ordinary in a v-twin? Take custom to the next level with the S&S® X-Wedge® engine.

S&S' proprietary engine incorporates design features you just won't find in other v-twins. The 56 degree pushrod twin features a massive durable one-piece crankshaft with split connecting rods and plain bearing for both rod and crank.

- Its two exhaust and one intake camshafts are driven by a quiet, yet durable belt.
- The low mass automotive style rocker arms are driven by nearly straight angle pushrods for quiet dependable operation.
- The X-Wedge is offered in displacements range from 117" to a hefty 132".
- Available in a number of finishes including silver powdercoat, wrinkle black powdercoat and polished. X-Wedge engines are 50 state emission compliant.

This engine is so unique that vehicle manufacturers are choosing it as their powertrain of choice for their product lines:

- CR&S®, in Italy, is building a radical new sportbike that is powered by the X-Wedge.
- The Morgan Company has selected the X-Wedge for the re-introduction of the Morgan 3-wheeler.
- Ideal for custom built motorcycles using Rolling Thunder frames or your existing modified frame.



**4 1/2" Bore Cylinder and Piston Upgrade Kit** — Increase the displacement of your X-Wedge engine with these bolt-on cylinder and piston kits. A bore increase will take an X121 to X128 and an X117 to X132! No changes to the crankcases or flywheels are required. Bolt-on Proven Performance® from S&S!

**Roller Rocker Arm Kit** — Automotive style billet aluminum rockers with roller tips and needle fulcrum bearings. These rockers increase your ratio to 1.80 from the 1.76 stock. Valve lift is increased 2.2%!

**4 STEPS**

## Performance Guide

STEP 1: INTAKE AND EXHAUST	6-2
Air Cleaners	6-2
STEP 2: CAMS & PUSHRODS	6-3
Cams	6-3
Pushrods	6-4
STEP 3: BIG BORE KIT	6-5
STEP 4: CNC PORTED HEADS	6-6

## Performance Kits

PERFORMANCE ENGINES	6-7
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## Performance Parts

CRANKCASES	6-9
FLYWHEELS	6-9
OIL PUMPS	6-10
CAMS	6-11
CYLINDERS & PISTONS	6-13
CYLINDER HEADS	6-14
TAPPETS	6-15
PUSHRODS	6-15
ROCKER ARMS	6-16
VALVE SPRINGS	6-16
FUEL SYSTEMS	6-17
ELECTRONICS	6-18
TRANSMISSION	6-20
CLUTCH	6-22
BELTS	6-23
FRAMES	6-24

## Replacement Parts 6-26

S&S®

## SINGLE BORE TUNED INDUCTION SYSTEM

### FITMENT

- S&S X-Wedge® engines

### FEATURES AND BENEFITS

- Bolt-on performance — *over twice the filtering area over stock intake system*
- Increases horsepower and torque across the rpm range using air column inertia and carefully timed gas dynamic pressure waves
- Smooth intake tract of carefully selected tuned lengths increases performance
- High flow washable and reusable cotton media provides performance, protection, and economy



### S&S SINGLE BORE TUNED INDUCTION SYSTEM KITS

Fitment	Fuel Delivery	Finish	Part No.
S&S X-Wedge	Single Bore	Chrome Runner and Red Filters	<b>170-0082</b>
<b>CTO</b>	Specify	Specify	<b>106-5337*</b>

\*Use the Configure to Order (CTO) part number to order different finish and filter color.

### REPLACEMENT PARTS ON PAGE 6-30



*Billet adaptor brackets make single bore tuned induction compatible with a lot of different engines and motorcycles.*



Washable nylon air filter covers are water resistant and filter out large debris, allowing the filter media to stop small dirt particles from getting into your engine

S&S Nylon Air Filter Cover

each ..... **106-0247**

2 pack ..... **106-0248**

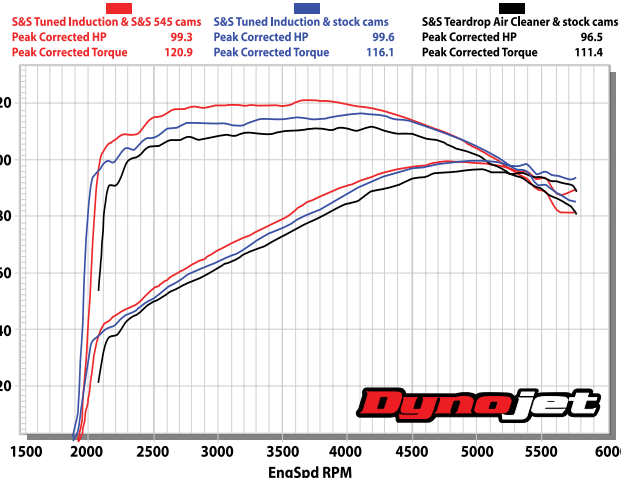


Renew the color of your air filter with an 8 oz. bottle of S&S Air Filter Oil. Choice of red or blue oil.

S&S Air Filter Oil, Red. .... **106-1163**

S&S Air Filter Oil, Blue ..... **106-1164**

### Dyno Comparison S&S® 117" X-Wedge Engine with Tuned Induction vs Teardrop Air Cleaner



S&S Throttle Body

58mm ..... **106-3960**

52mm ..... **106-3141**

### REPLACEMENT PARTS ON PAGE 6-31

# S&S® X-WEDGE® EASY START CAMS

All cams for S&S X-Wedge engines feature the S&S Easy Start automatic, mechanical compression release. The ease of starting with the Easy Start cams, coupled with the fact that compression ratio does not increase proportionally with displacement in X-Wedge engines, allows cams to be used with a wide range of displacements. Production cams for X-Wedge are designed to be "non-interference" cams. That means that if the valve train were to stop for any reason, there is enough valve to valve, and valve to piston clearance to avoid engine damage from valves contacting each other, or the piston.

## RECOMMENDED APPLICATIONS FOR S&S X-WEDGE CAMS

**545 CAMS** — Bolt-in cams for X-Wedge engines. These camshafts provide 10 ft./lbs. more torque than 548 cams between 1900-3300 rpm. For all displacements with 9.5–10.0:1 compression ratio.

**548 CAMS** — Stock replacement cams for X114, X117, and X121 engines. Emissions compliance is maintained when these cams are installed. Use with stock pushrods. Non-interference.

**569 CAMS** — Bolt-in performance upgrade cams for any displacement X-Wedge engine from 9.8:1 to 10.2:1 compression ratio. Use with stock pushrods. These cams are non-interference, but are not emissions compliant.

**618 CAMS** — Performance upgrade cams for any displacement X-Wedge engine from 9.8:1 to 10.2:1 compression ratio. The 618 cams can be installed as a bolt-in, but it is recommended that the S&S .650 lift spring kit #900-0212 be installed to increase spring force for improved high rpm valve control. The 618 cams are not non-interference cams, and are not emissions compliant. Due to the smaller diameter cam base circle, the X618 cams require a special, slightly longer pushrod set #930-0021, or billet aluminum rocker arm set #900-0213.

## PART NUMBERS

Camshaft, Kit, 545 Easy Start (3 cams) .....	106-4444
Camshaft, Kit, 548, X-Wedge® (3 cams) .....	106-0577
Compression Release 548 Update Kit (2 exhaust cams) .....	106-3809
Camshaft, Kit, 569 Easy Start (3 cams) .....	330-0047
Camshaft, Kit, 618 Easy Start (3 cams) .....	330-0074

## ANY JOB IS EASY WITH THE RIGHT TOOLS

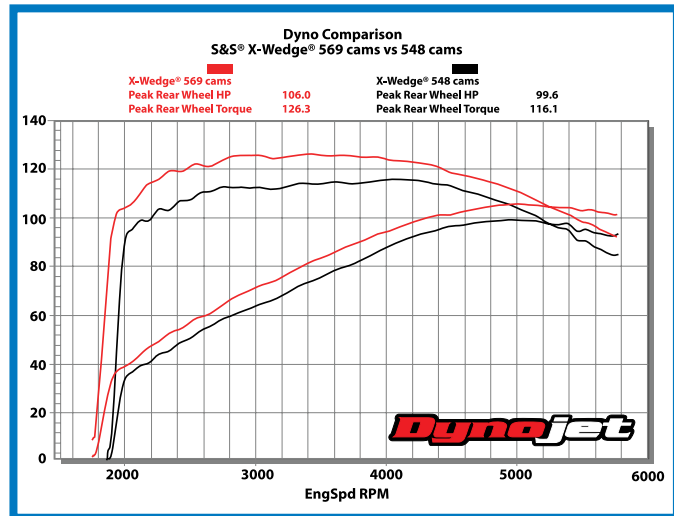
S&S Cam Alignment Tools for X-Wedge®, see page 9-9930-0021



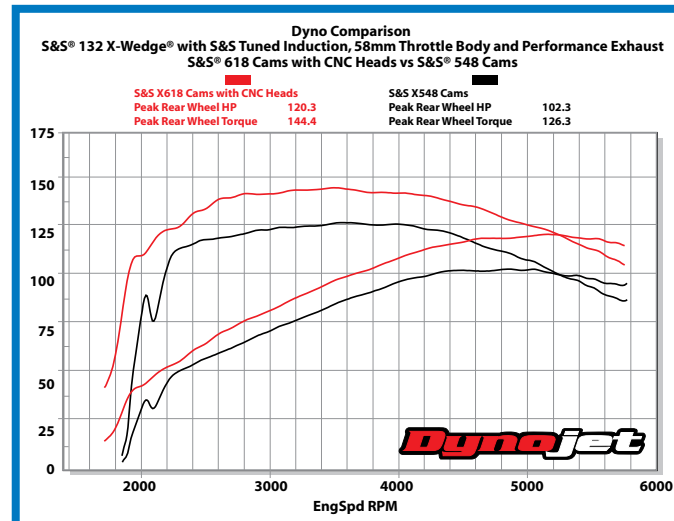
WATCH THE S&S EASY START CAMS CRANK TEST VIDEO AT  
SSCYCLE.COM/MEDIA/VIDEOS.PHP



S&S® exclusive centrifugally actuated compression release holds the exhaust valve open slightly until the engine has achieved about 700 rpm. At that point, centrifugal force retracts the compression release, allowing the exhaust valves to close completely, and the engine runs normally. Early engines not equipped with compression release, can be updated with the Compression Release Update Kit.



This dyno chart shows the improvements to the overall performance by installing the new 569 cams. Easy starting and true bolt-in performance make this cam an economical performance upgrade.



Cam Name	Valve Timing (open/close) <sup>1</sup>		Valve Duration		Valve Lift <sup>2</sup>	Centerline		Lift@TDC <sup>3</sup>	
	Intake	Exhaust	Intake	Exhaust		Intake	Exhaust	Intake	Exhaust
	Open BTDC/Close ABDC	Open BBDC/Close ATDC							
545	13°/39°	57°/0°	206°	237°	0.548"	116°	119°	.050"	.080"
548	5°/55°	57°/0°	240°	237°	0.548"	115°	118.5°	0.136"	0.080"
569	9°/40°	47°/17°	229°	244°	0.569"	105.5°	104.5°	0.137"	0.179"
618	9°/43°	62°/23°	232°	264°	0.618"	107°	109°	0.140"	0.224"

<sup>1</sup> Timing designation is a function of zero lash @ 0.053" off base circle.

<sup>2</sup> Valve lift is calculated from a 1.76:1 ratio rocker arm.

<sup>3</sup> TDC lift is measured at the valve and is for reference only.



## PUSHRODS FOR S&S® X-WEDGE® ENGINES

Unlike other S&S engines and stock engines modified with S&S high performance kits, all production X-Wedge engines are the same height. Changes in stroke are limited to what can be accommodated by changing the piston deck height, without changing cylinder length. This limits the range of strokes available, but the range of bore size provides a wide range of available displacements. Based on this, pushrod length is determined by cam and rocker arm combination

### PART NUMBERS

X-Wedge® Pushrod Sets — *All displacements with stock rocker arms*

Stock Length (*for use with 545, 548 and 569 cams*) ..... **106-0699**

+.030" length (*for use with 618 cams*) ..... **930-0021**

X-Wedge® Pushrod Set — *All displacements with aluminum roller rocker arms*

-.035" length (*for use with all cams*) ..... **930-0017**



*Pushrod set part #106-0699 features four pushrods of the same length.*

Parts for  
Twin Cam 96°/103°  
2007-2012

Parts for  
Twin Cam 88°  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Mettlic

Racing  
Products

Tools & Shop  
Supplies

Dealer Services  
& Promo Items

Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index





S&amp;S®

# 4-3/8" BORE CYLINDER AND PISTON UPGRADE KITS FOR X-WEDGE® X128 AND X132 ENGINES

Increase the displacement of your X-Wedge engine with these bolt-on cylinder and piston kits. A 1/8" bore increase will take an X121 to X128, and a 1/4" bore increase will take an X117 to X132! No changes to the crankcases or flywheels are required. Bolt-on Proven Performance® from S&S!

## FITMENT

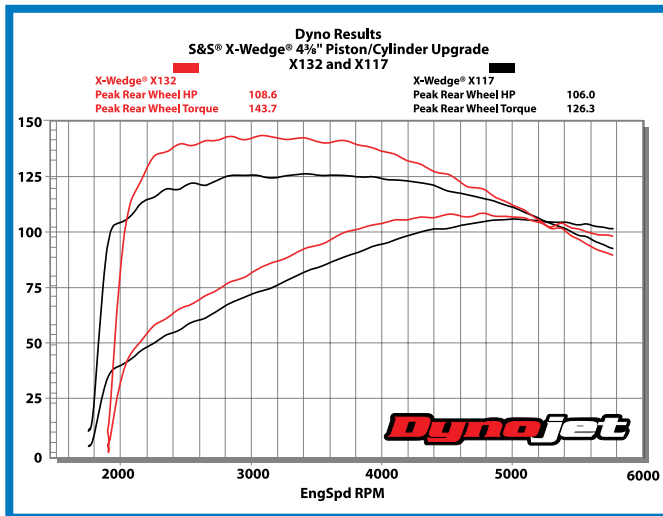
- S&S X-Wedge® engines

## FEATURES AND BENEFITS

- Bolt-on performance
- Increase displacement without crankcase modifications
- Fits all X-Wedge engines

## OPTIONS

- Silver powdercoat, wrinkle black powdercoat or polished finish



This dyno chart shows the performance enhancements from increasing displacement. While peak horsepower is not greatly affected, overall torque drastically increases – 140 ft./lb. at 2500 rpm! Both engines are configured with S&S X569 cams, S&S 58mm throttle body, S&S tuned runner intake and custom made 2:1 header system with a performance muffler.

## REPLACEMENT 4 3/8" BORE CYLINDER SETS FOR S&S® X-WEDGE® ENGINES

Displacement	Stroke	Bore	Cylinder Length	Compression Ratio	Cylinders Only (Set)		
					Silver	Wrinkle Black	Full Polished
128"	4.25"	4.375"	4.645"	10:1	910-0002	910-0001	910-0003
132"	4.375"	4.375"	4.645"	10.3:1			

Cylinders are honed and ready for assembly. Cylinder sets include front and rear cylinders. Includes head and base gaskets. Pistons are sold separately. See chart below.

## REPLACEMENT FORGED PISTON SETS FOR S&S® X-WEDGE® ENGINES

Displacement	Standard Piston Set	+.010 Piston Set
128"	920-0003	920-0006
132"	920-0002	920-0004

All piston sets are for two pistons and include rings, wristpin, and clips.

## REPLACEMENT PARTS FOR X128 & X132 PISTONS

Standard Moly Faced Rings	94-4285X
+.010 Moly Faced Rings	94-4286X
Wristpin	94-9277
Keeper	106-0004

## REPLACEMENT GASKETS

4 3/8" Head Gasket	93-1132
Base Gasket	93-1120

## CNC PORTED CYLINDER HEADS FOR X-WEDGE®

S&S® now offers a CNC porting service for stock cylinder heads for X-Wedge® engines. This is an economical way to get a substantial horsepower increase. S&S has developed high flowing intake port, exhaust port, and combustion chamber shapes for X-Wedge cylinder heads. S&S then digitally reproduces them in a head casting with our 5 axis CNC machining centers. After CNC porting, heads are assembled with new valves and high performance, conical high silicon alloy valve springs.

### FITMENT

- 128" and 132" X-Wedge engines

### FEATURES AND BENEFITS

- CNC machined ports for a consistent performance increase from original heads
- Choice of two different chamber machinings (107cc or 113cc)
- Great throttle response, high velocity port without losing low RPM torque
- Assembled with performance valves and springs
- Finish options: Full polished, silver, wrinkle black powdercoat

### SERVICE OPTIONS

- Buy New CNC, or...
- Rework Service
  - Heads sent to S&S
  - Get the same set of heads back with CNC machined ports & chambers
  - The best option for heads with a special cosmetic treatment
  - Allow 2 week turn-around
- Custom CNC Port Duplication
  - S&S can digitize your port design and machine it in your heads, ask an S&S customer service representative for details



WATCH THE S&S CNC PORTING VIDEOS AT  
[SSCYCLE.COM/MEDIA/VIDEOS.PHP](http://SSCYCLE.COM/MEDIA/VIDEOS.PHP)



Shown is an intake port from a CNC machined X-Wedge® cylinder head. Notice the detailed machining that gives our CNC ported heads the performance that your big-inch engine demands.



Digitized port shapes are faithfully reproduced in X-Wedge cylinder heads on our 5-Axis CNC machining center. Intake port, exhaust port and combustion chamber are all modified. This head will be assembled with new valves and high lift valve springs to complete the package.

### PART NUMBER

S&S CNC Porting Service For X-Wedge® Heads ..... **106-6480**

		Stock Heads	CNC Ported by S&S®
Valve Size	Intake	2.00"	2.2"
	Exhaust	1.605"	1.675"
Max "Free Spin" Valve Lift*		0.0580"	0.0580"
Port Flow	Intake	261.2 cfm	315 cfm
	Exhaust	190.8 cfm	215 cfm
Compression Ratio	128"	10.1:1	10.2:1
	132"	10.3:1	10.5:1
Cylinder Heads Decked		—	0.030"
Chamber Volume		104 cc	102 cc**

\*"Free Spin" valve lift controlled by valve reliefs in piston. \*\* After decking.  
Flow testing performed on a SuperFlow® 1020 flow bench at 28" of water test pressure at .600" lift through radiused inlet.

### NOTES:

CNC porting is not available for previously ported heads, heads that have been structurally damaged, or heads that are determined to be unserviceable during initial inspection. These heads will be returned to the customer without modification. In these cases customer will be notified and options reviewed. New CNC ported heads are available for purchase.

Due to variations in cylinder head castings, all inside surfaces of the ports may not "clean up" during machining. As a result, the inside of one or more ports may not appear to be completely machined. This does not effect performance and is not considered a defect.

### INDIVIDUAL PARTS FOR X-WEDGE® CNC PORTED HEADS

Spring	106-5689
Intake Valve	90-2000
Exhaust Valve	90-2001
Valve Guide Seal	90-2281
Top Collar	106-5690
Bottom Collar	106-3827
Valve Keeper	90-2094-S



**ORDER TOLL FREE 866-244-2673**

# S&S® X-WEDGE® PERFORMANCE ENGINES

S&S Performance X-Wedge fuel injected engines are similar to the emissions compliant versions, but are intended for closed course competition and for display vehicles. Performance X-Wedge engines do not come with emissions compliance documentation, and there are no limitations on vehicle weight, exhaust system, or gear ratios. Like all other S&S performance engines, a Manufacturer's Statement of Origin (MSO) is issued at the time of sale, and the installer is not required to document compliance. The S&S Variable Fuel Injection (VFI) module included with this engine is the full performance version with no restrictions on tuning. Otherwise, features and specifications are the same as the 49-state and 50-state compliant models. Not legal for sale or use in pollution-controlled motor vehicles.

## FITMENT

- Custom X-Wedge chassis
- Harley-Davidson® FXR or bagger chassis modified for X-Wedge
- For closed course competition or display vehicles

## FEATURES AND BENEFITS

- 117 or 132 cubic inch displacement
- 56° cylinder angle — **reduced piston interference and less vibration**
- Unique belt driven, three cam design — **better pushrod angles and reduced noise**
- Forged one-piece crankshaft with automotive style plain bearings
- Automotive style low mass rocker arms
- Gerotor style oil pump
- S&S closed loop fuel injection with knock sensing ignition
- Easy Start cams: 548 cams for 117" and 569 cams for 132"

## OPTIONS

- Choice of silver powdercoat, wrinkle black powdercoat or polished finish

## KIT CONTENTS

- Fully assembled engine



WATCH THE X-GLIDE VIDEOS AT  
SSCYCLE.COM/MEDIA/VIDEOS.PHP

### S&S® X-WEDGE® PERFORMANCE ENGINES

Engine	Certification	Warranty	Silver	Black	Polished
X117	None	3 year	106-1542	106-1541	106-1543
X132	None	2 year	310-0226	310-0225	310-0227

### SPECIFICATIONS S&S® X-WEDGE® PERFORMANCE ENGINES

Engine	Chassis Style	Displacement	Cylinder Angle	Bore	Stroke	Compression Ratio	Fuel System	Ignition
X117	S&S X-Wedge®	117"	56.25°	4 1/8"	4 3/8"	9.75:1	S&S Closed Loop Single Bore VFI	S&S VFI w/Knock Sensing
X132	S&S X-Wedge®	132"		4 3/8"		10.1:1		

## CAN X-WEDGE® ENGINES BE USED IN STOCK FRAMES?

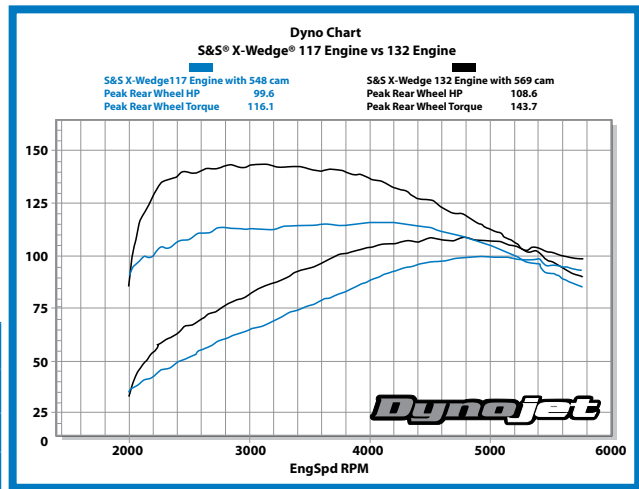
X-Wedge engines will not fit in stock Harley-Davidson® frames unless some major modifications are made. Luckily, frame manufacturer, Rolling Thunder can modify FXR and bagger frames to accommodate the X-Wedge engine. Not only can the frame be set up for the X-Wedge engine, but tire width, rake, and stretch can be customized at the same time. There are several advantages to taking this approach. For one thing, it allows you to use most of the components from an existing motorcycle. More importantly, the stock VIN number on the frame is retained. S&S offers X-Wedge compatible frames from several manufacturers (see pages 6-24)

Builders using modified frames from existing, previously registered motorcycles must use non-certified X-Wedge engines from the chart on this page.



Includes S&S® oil filter and Mobil 1® 20W-50 synthetic oil  
**Mobil 1**  
The Official Oil of S&S Cycle

This dyno chart shows the performance of an X-Wedge 117 engine with 548 cam and an X-Wedge 132 engine with 569 cam. Both engines are equipped with an S&S 58mm throttle body, single bore tuned induction and a custom made 2:1 exhaust with performance mufflers.



### COMPLETE ENGINE REBUILD GASKET KITS

S&S Engine Family	Year Group	Bore Size	Part No
X-Wedge®	Custom	4 3/8"	106-1031
X-Wedge®	Custom	4 1/4"	106-1029
X-Wedge®	Custom	4 1/8"	106-1030

Contact:  
Rolling Thunder Mfg.  
1810 Ford Blvd  
Chateaugay, Quebec J6J 4Z2 Canada  
Tel: 450-699-7045 Fax: 450-699-6974  
www.rollingthunderframes.com

—OR—

Contact:  
S&S Cycle, Inc  
14025 County Hwy G, Box 215  
Viola, Wisconsin 54665 USA  
Tel: 608-627-1497 Fax: 608-627-1488  
www.sscycle.com



S&S®

## X-WEDGE® ENGINES 49-STATE AND 50-STATE EMISSION COMPLIANT

The X-Wedge® engine is an S&S® designed 56° pushrod v-twin with three belt-driven cams in a unique configuration that provides nearly straight pushrod angles to all valves. In the lower end, a one-piece forged crankshaft with automotive style plain bearing connecting rods and plain main bearings offer greater load capacity, increased engine durability and reduced noise. The cylinder heads are designed with automotive style, low-mass rocker arms and a unique cross-flow wedge style combustion chamber. The fuel system consists of an S&S single bore throttle body and Variable Fuel Injection module, which boasts closed loop feedback for fuel control and knock sensing ignition. This engine was designed as an emissions compliant performance engine right from the get-go. It was intended to fill a need in the market for manufacturers and custom bike builders who wanted something a little different, while maintaining emissions compliance. Available in 49-state and 50-state versions.

### FITMENT

- New build custom motorcycles

### FEATURES AND BENEFITS

- 117 cubic inch displacement
- 56° cylinder angle — *reduced piston interference and less vibration*
- Unique belt driven, three cam design — *better pushrod angles and reduced noise*
- Forged one-piece crankshaft with automotive style plain bearings
- Gerotor style oil pump
- Automotive style low mass rocker arms
- S&S closed loop fuel injection
- Easy Start 548 cams

### OPTIONS

- Choice of silver powdercoat, wrinkle black powdercoat or polished finish
- 49-state or 50-state compliant versions

### KIT CONTENTS

- Fully assembled engine
- Full documentation
- X117C includes an evaporative emissions hardware kit
- Three year warranty



The X-Wedge® engine is an S&S proprietary design with a 56° cylinder angle and three belt driven cams. Requires a special frame as it will not fit in frames designed for Harley-Davidson® engines.



WATCH THE X-GLIDE VIDEOS AT  
SSCYCLE.COM/MEDIA/VIDEOS.PHP

### SPECIFICATIONS S&S® X-WEDGE® 49-STATE AND 50-STATE ENGINES

Engine	Chassis Style	Displacement	Cylinder Angle	Bore	Stroke	Compression Ratio	Fuel System	Ignition
X117E and X117C	S&S X-Wedge®	117"	56.25°	4 1/8"	4 3/8"	9.75:1	S&S Closed Loop Single Bore VFI	S&S VFI w/Knock Sensing

### S&S® X-WEDGE® 49-STATE AND 50-STATE ENGINES

Engine	Certification	Silver	Black	Polished
X117E	49-State	31-8061	31-8060	31-8062
X117C	50-State	106-3753	106-3752	106-3754

### COMPLETE ENGINE REBUILD GASKET KITS

S&S Engine Family	Year Group	Bore Size	Part No
X-Wedge®	Custom	4 3/8"	106-1031
X-Wedge®	Custom	4 1/4"	106-1029
X-Wedge®	Custom	4 1/8"	106-1030

## X-WEDGE® SERVICE MANUAL

These manuals are created to help you maintain your S&S engine. They outline the procedures necessary for both the home mechanic and shop technician to ensure maximum performance and longevity.

S&S X-Wedge Engines

All displacements ..... 106-0735



ORDER TOLL FREE 866-244-2673

# CRANKCASES FOR S&S® X-WEDGE® ENGINES

These crankcases are intended as replacement parts for existing engines, but may also be used to build large high performance engines. It should be noted that only engines built by S&S Cycle with the specified parts and documentation are considered "emissions compliant".

## FITMENT

- X-Wedge® engines

## FEATURES AND BENEFITS

- Cylinder deck height of 6.125" and will accommodate 4 $\frac{1}{8}$ " up to 4 $\frac{3}{8}$ " bore cylinders without modification.

## OPTIONS

- Silver powdercoat, wrinkle black powdercoat, or polished finish

## KIT CONTENTS

- S&S crankcase
- Hardware
- Seals



### CRANKCASE KITS FOR S&S X-WEDGE® ENGINES

Finish	Part Number
Silver Powdercoat	106-0604
Wrinkle Black Powdercoat	106-0605
Full Polish	106-0603

*NOTE: S&S recommends using Permatex Right Stuff® for sealing crankcases.*

**REPLACEMENT PARTS ON PAGE 6-26**

# CRANKSHAFTS FOR S&S® X-WEDGE® ENGINES

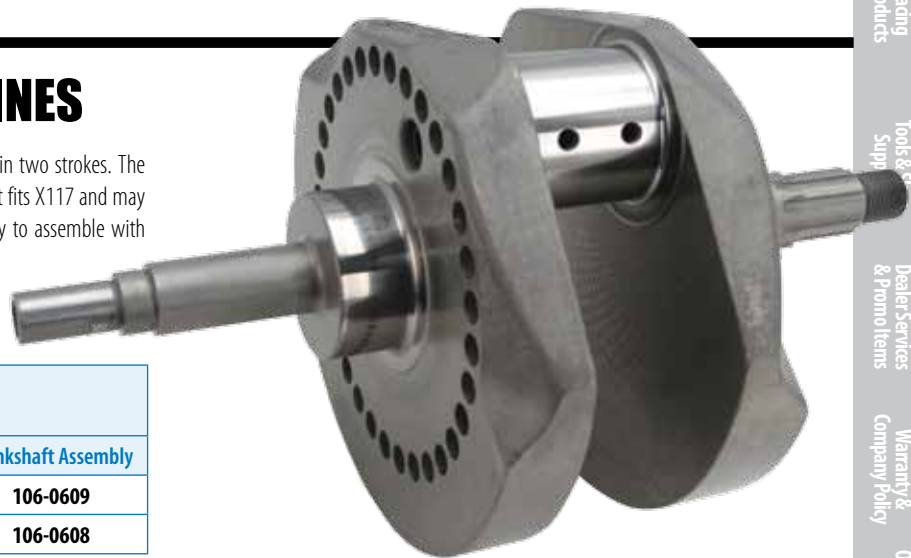
Replacement forged crankshafts are available for X-Wedge engines in two strokes. The 4 $\frac{1}{4}$ " stroke crank fits X114 and X128 engines and the 4 $\frac{3}{8}$ " crankshaft fits X117 and may be used to build X132 engines. Crankshafts are machined and ready to assemble with standard bearings. Crank assembly includes rods.

### CRANKSHAFT ASSEMBLIES FOR S&S X-WEDGE® ENGINES

Engine	Stroke	Crankshaft Only	Crankshaft Assembly
X117/X132	4 $\frac{3}{8}$ "	106-0607	106-0609
X114/X121/X128	4 $\frac{1}{4}$ "	106-0606	106-0608

## ANY JOB IS EASY WITH THE RIGHT TOOLS

S&S Crankshaft Main Bearing Protector for X-Wedge®, see page 9-8



106-0607

Replacement forged crankshafts for X-Wedge® engines are ready to assemble with standard bearings.

PERFORMANCE  
PARTS

Parts for  
Twin Cam 96"/103"  
2007-2012

Parts for  
Twin Cam 88"  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Metric

Racing  
Products

Tools & Cr  
Supp

Dealer Services  
& Promo Items

Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index

Parts for  
Twin Cam 96°/103°  
2007-2012

Parts for  
Twin Cam 88°  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

PERFORMANCE  
PARTS

Parts for  
Victory® Off-road  
& Metric

Racing  
Products

Tools & Shop  
Supplies

Dealer Services  
& Promo Items

Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index

## CONNECTING RODS FOR S&S® X-WEDGE® ENGINES

All X-Wedge engines, regardless of stroke or displacement, use the same connecting rods. These forged rods are 7.400" plain bearing, automotive style, with a two piece design, 2.200" journal diameter, and .927" wristpin diameter. Since the front and rear rods are identical, rods are not sold in sets but are available individually. Bearings are not included and must be purchased separately.

### S&S CONNECTING RODS FOR X-WEDGE® ENGINES

Connecting Rod	
Front or Rear .....	106-0583
Bearing Inserts	
Standard.....	106-0569
Bearing Cap Screws	
12 pt, 7/16"-20 x 1.60" .....	50-0346-S



Connecting rods for S&S X-Wedge® engines are sold individually since they are the same for front and rear cylinders. Plain bearing inserts are not included with the connecting rod and are available separately.

## OIL PUMP FOR S&S® X-WEDGE® ENGINES

This gerotor pump is a direct replacement for the oil pump in any X-Wedge engine. Kit includes all parts needed to replace a worn or damaged pump.

X-Wedge® Oil Pump Kit .....	106-0680
-----------------------------	----------



REPLACEMENT PARTS ON PAGE 6-28

## BELT COVERS FOR S&S® X-WEDGE® ENGINES

Replacement belt covers for X-Wedge engines are available in chrome finish and carry the S&S logo. Note that unlike many other v-twin engines, the outer cover of an X-Wedge engine is just a cover to protect the cam drive belt and cam sprockets. These covers will fit any X-Wedge engine.

### X-WEDGE® BELT COVERS

Chrome .....	106-0587
--------------	----------



REPLACEMENT PARTS ON PAGE 6-27



## S&S® X-WEDGE® EASY START CAMS

All cams for S&S X-Wedge engines feature the S&S Easy Start automatic, mechanical compression release. The ease of starting with the Easy Start cams, coupled with the fact that compression ratio does not increase proportionally with displacement in X-Wedge engines, allows cams to be used with a wide range of displacements. Production cams for X-Wedge are designed to be "non-interference" cams. That means that if the valve train were to stop for any reason, there is enough valve to valve, and valve to piston clearance to avoid engine damage from valves contacting each other, or the piston.

### RECOMMENDED APPLICATIONS FOR S&S X-WEDGE CAMS

**545 CAMS** – Bolt-in cams for X-Wedge engines. These camshafts provide 10 ft./lbs. more torque than 548 cams between 1900–3300 rpm. For all displacements with 9.5–10.0:1 compression ratio.

**548 CAMS** – Stock replacement cams for X114, X117, and X121 engines. Emissions compliance is maintained when these cams are installed. Use with stock pushrods. Non-interference.

**569 CAMS** – Bolt-in performance upgrade cams for any displacement X-Wedge engine from 9.8:1 to 10.2:1 compression ratio. Use with stock pushrods. These cams are non-interference, but are not emissions compliant.

**618 CAMS** – Performance upgrade cams for any displacement X-Wedge engine from 9.8:1 to 10.2:1 compression ratio. The 618 cams can be installed as a bolt-in, but it is recommended that the S&S .650 lift spring kit #900-0212 be installed to increase spring force for improved high rpm valve control. The 618 cams are not non-interference cams, and are not emissions compliant. Due to the smaller diameter cam base circle, the X618 cams require a special, slightly longer pushrod set #930-0021, or billet aluminum rocker arm set #900-0213.

### PART NUMBERS

Camshaft, Kit, 545 Easy Start (3 cams) .....	106-4444
Camshaft, Kit, 548, X-Wedge® (3 cams) .....	106-0577
Compression Release 548 Update Kit (2 exhaust cams) .....	106-3809
Camshaft, Kit, 569 Easy Start (3 cams) .....	330-0047
Camshaft, Kit, 618 Easy Start (3 cams) .....	330-0074

### ANY JOB IS EASY WITH THE RIGHT TOOLS

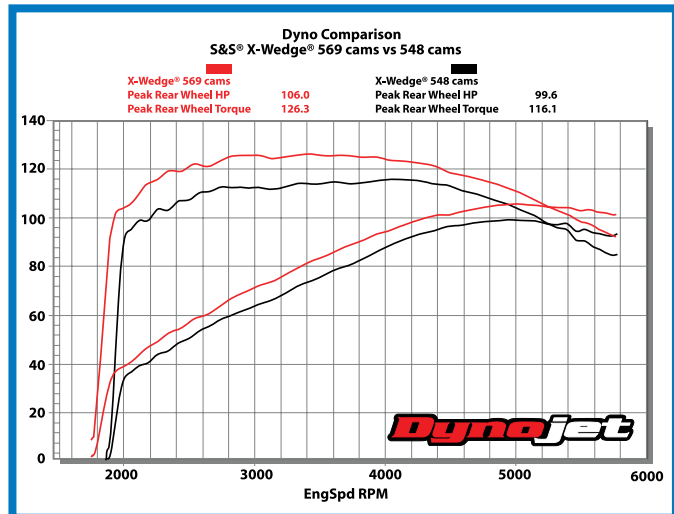
S&S Cam Alignment Tools for X-Wedge®, see page 9-9



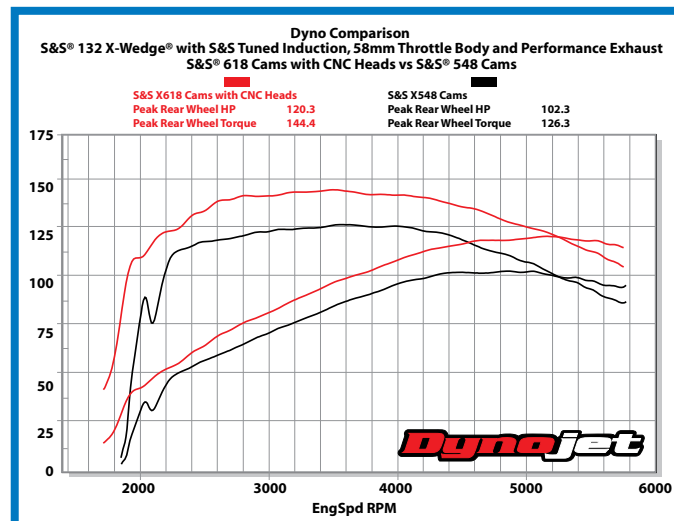
WATCH THE S&S EASY START CAMS CRANK TEST VIDEO AT  
SSCYCLE.COM/MEDIA/VIDEOS.PHP



S&S® exclusive centrifugally actuated compression release holds the exhaust valve open slightly until the engine has achieved about 700 rpm. At that point, centrifugal force retracts the compression release, allowing the exhaust valves to close completely, and the engine runs normally. Early engines not equipped with compression release, can be updated with the Compression Release Update Kit.



This dyno chart shows the improvements to the overall performance by installing the new 569 cams. Easy starting and true bolt-in performance make this cam an economical performance upgrade.



Cam Name	Valve Timing (open/close) <sup>1</sup>		Valve Duration		Valve Lift <sup>2</sup>	Centerline		Lift@TDC <sup>3</sup>	
	Intake	Exhaust	Intake	Exhaust		Intake	Exhaust	Intake	Exhaust
	Open BTDC/Close ABDC	Open BBDC/Close ATDC							
545	13°/39°	57°/0°	206°	237°	0.548"	116°	119°	.050"	.080"
548	5°/55°	57°/0°	240°	237°	0.548"	115°	118.5°	0.136"	0.080"
569	9°/40°	47°/17°	229°	244°	0.569"	105.5°	104.5°	0.137"	0.179"
618	9°/43°	62°/23°	232°	264°	0.618"	107°	109°	0.140"	0.224"

<sup>1</sup> Timing designation is a function of zero lash @ 0.053" off base circle.

<sup>2</sup> Valve lift is calculated from a 1.76:1 ratio rocker arm.

<sup>3</sup> TDC lift is measured at the valve and is for reference only.

## CAM CHEST REPLACEMENT PARTS FOR S&S® X-WEDGE® ENGINES

These replacement parts for the cam drive system are universal for all X-Wedge engines. Note that one pinion sprocket and three cam sprockets are required per engine.

### PART NUMBERS

Pinion sprocket, 19-tooth.....	<b>106-0741</b>
Cam sprocket, 38-tooth.....	<b>106-0740</b>
Belt, cam drive, 127-tooth, 30mm.....	<b>106-0571</b>
Belt tensioner, 30mm.....	<b>106-0751</b>
Pinion sprocket bolt.....	<b>50-0467</b>
Pinion washer, flanged.....	<b>106-0753</b>



106-0740



106-0751



106-0741



106-0753



50-0467



106-0571

## CAM BEARING REPLACEMENT PARTS FOR S&S® X-WEDGE®

Inner Cam Bearing for S&S X-Wedge®.....	<b>31-4080</b>
Outer Cam Bearing for S&S X-Wedge®.....	<b>106-1424</b>



106-1424



31-4080

PERFORMANCE PARTS

# CYLINDERS AND PISTONS FOR S&S® X-WEDGE® ENGINES

The S&S X-Wedge engine is different from anything we have offered before. Developing a new design allowed us to incorporate a number of useful new features, and one of our priorities early on in the design process was to make this engine easy to service. The front and rear cylinders and pistons are interchangeable, which means that we don't have to sell cylinders or pistons in sets. In addition, the diameter of the X-Wedge pistons is held to such a tight tolerance that it is not necessary to measure each piston and fit a cylinder to it. Cylinders can be honed to the specified size and any piston of the correct oversize will fit with the correct clearance.

## FITMENT

- X-Wedge engines

## FEATURES AND BENEFITS

- The front and rear cylinders and pistons are interchangeable
- Cylinders can be honed to the specified size and any piston of the correct oversize will fit with the correct clearance.

## OPTIONS

- Silver powdercoat, wrinkle black powdercoat, or polished finish



### X-WEDGE® GASKETS & DOWELS

Description	Part No.
Gasket Kit 4 1/4" Bore	106-0629
Gasket Kit 4 1/8" Bore	106-0630
Head Gasket 4 3/8" Bore	93-1132
Head Gasket 4 1/4" Bore	93-1131
Head Gasket 4 1/8" Bore	93-1130
Base Gasket for all bores	93-1120
Dowel Pin .187" x .635"	50-8031

### FORGED PISTONS

Due to piston coating, piston measurements are not reliable.

Bore cylinders to nominal diameter +/- .0005" for correct clearance.

### CYLINDER SETS FOR S&S® X-WEDGE® ENGINES

Displacement	Stroke	Bore	Cylinder Length	Compression Ratio	Cylinders Only (Set)		
					Silver	Wrinkle Black	Full Polished
114"	4.25"	4.125"	4.645"	8.5:1	91-7461	91-7463	91-7465
117"	4.375"	4.125"	4.645"	9.75:1	91-7461	91-7463	91-7465
121"	4.25"	4.25"	4.645"	9.75:1	91-7467	91-7469	91-7471
128"	4.25"	4.375"	4.645"	10:1	910-0002	910-0001	910-0003
132"	4.375"	4.375"	4.645"	10.3:1			

Cylinder sets include front and rear cylinders. Pistons are sold separately. See chart below.

### FORGED PISTON SETS FOR S&S® X-WEDGE® ENGINES

Displacement	Standard Piston Set	+ .010" Piston Set	+ .020" Piston Set
114"	106-0108	—	—
117"	106-0108	—	—
121"	106-0109	—	106-0687
128"	920-0003	920-0006	—
132"	920-0002	920-0004	—

All piston sets are for two pistons and include rings, wristpin, and clips.

### REPLACEMENT PARTS FOR X-WEDGE PISTONS

	X114 & X117		X121		X128 & X132	
	2 PACK	1 PACK	2 PACK	1 PACK	2 PACK	1 PACK
Standard Moly Faced Rings	106-0011	—	106-0012	106-0709	94-4285X	—
+ .010 Moly Faced Rings	—	—	106-0705	106-2577	94-4286X	—
+ .020 Moly Faced Rings	—	—	106-0707	106-2578	—	—
Wristpin	106-1000		106-1000		94-9277	
Keeper	106-0004		106-0004		106-0004	



Parts for  
Twin Cam 96°/103°  
2007-2012

Parts for  
Twin Cam 88°  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-Road  
& Metric

Racing  
Products

Tools & Shop  
Supplies

Dealer Services  
& Promo Items

Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index

PERFORMANCE  
PARTS

# CYLINDER HEADS FOR S&S® X-WEDGE® ENGINES

These cylinder heads are intended as replacement parts for existing engines, but may also be used to build large high performance engines. These can be used on 114", 117", 121" and 132" X-Wedge engines.

## FITMENT

- X-Wedge engines

## FEATURES AND BENEFITS

- .585" lift Sidewinder® springs
- Powder metal valve guides
- Completely assembled stock heads — *ready to bolt-on*

## OPTIONS

- Silver powdercoat, wrinkle black powdercoat, or full polished finish



REPLACEMENT CYLINDER HEADS FOR S&S® X-WEDGE® ENGINES			
Finish	Assembled		
	Set	Front	Rear
Silver	106-0646	106-0652	106-0656
Wrinkle Black	106-0647	106-0651	106-0657
Full Polished	106-0644	106-0649	106-0654

REPLACEMENT PARTS ON PAGE 6-29

CYLINDER HEAD GASKET KITS		
S&S Engine Family	Bore Size	Part No.
X-Wedge®	4¼"	106-0629
X-Wedge®	4⅞"	106-0630

# HEAD BOLTS FOR S&S® X-WEDGE® ENGINES

Will fit any production X-Wedge engine regardless of displacement. 10 are required for complete replacement.

- Head bolt for S&S X-Wedge engines ..... 93-3028-S
- Washer (.150") ..... 50-0418-S



S&amp;S®

# HIGH PERFORMANCE HYDRAULIC TAPPETS

## TAPPETS FOR S&S® X-WEDGE® ENGINES

These high quality tappets are the same ones used in production S&S X-Wedge engines. So when the time comes to rebuild your X-Wedge, these are the tappets to use to bring your engine back to original condition.

Tappet, Hydraulic, X-Wedge® ..... **37-0030**

**NOTE:** Tappets for S&S X-Wedge engines are not designed for use with S&S HL<sub>2</sub>T limited travel kits.



## TAPPET COVERS FOR S&S® X-WEDGE® ENGINES

For replacement and customization, these tappet covers fit all X-Wedge engines. Available in silver powdercoat, wrinkle black powdercoat, or polished finish. Kit includes two tappet guides, gaskets, dowel pins, and mounting hardware. Everything needed for installation.

TAPPET COVER KITS FOR S&S® X-WEDGE®	
Silver Powdercoat	<b>106-0746</b>
Wrinkle Black Powdercoat	<b>106-0747</b>
Polished	<b>106-0745</b>

## REPLACEMENT PARTS

Gasket (each) ..... **37-0006**

10 pack ..... **106-0633**



## PUSHRODS FOR S&S® X-WEDGE® ENGINES

Unlike other S&S engines and stock engines modified with S&S high performance kits, all production X-Wedge engines are the same height. Changes in stroke are limited to what can be accommodated by changing the piston deck height, without changing cylinder length. This limits the range of strokes available, but the range of bore size provides a wide range of available displacements. Based on this, pushrod length is determined by cam and rocker arm combination

## PART NUMBERS

X-Wedge® Pushrod Sets — All displacements with stock rocker arms

Stock Length (for use with 545, 548 and 569 cams) ..... **106-0699**

+ .030" length (for use with 618 cams) ..... **930-0021**

X-Wedge® Pushrod Set — All displacements with aluminum roller rocker arms

-0.35" length (for use with all cams) ..... **930-0017**



Pushrod set part #106-0699 features four pushrods of the same length.

Parts for  
Twin Cam 96°/103°  
2007-2012

Parts for  
Twin Cam 88°  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Metric

Racing  
Products

Tools & Shop  
Supplies

Dealer Services  
& Promo Items

Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index



## S&S® ROLLER ROCKER ARM KIT FOR S&S® X-WEDGE® ENGINES

Automotive style billet aluminum rockers with roller tips and needle fulcrum bearings. These rockers increase your ratio to 1.80 from the 1.76 stock. Valve lift is increased 2.2%! Comes with all parts necessary to install in your X-Wedge.

### FITMENT

- X-Wedge® engines — *all displacements*
- Works with any cam

### FEATURES AND BENEFITS

- Increased cam lift
- Aluminum construction reduces weight
- Friction reducing bearings and rollers
- Allows for tappet adjustment

### PART NUMBERS

S&S® Roller Rocker Arm Kit.....	<b>900-0239</b>
Rocker Cover Gaskets ( <i>each</i> ) .....	<b>39-0010</b>
2 pack.....	<b>106-0622</b>



PERFORMANCE  
PARTS

## S&S® SIDEWINDER® VALVE SPRINGS

Lighter and simpler than our previous valve springs, S&S Sidewinder springs are made from special ovate spring wire and have only one progressively wound coil. Since they do not add as much mass to the valve train as multi-coil spring packs, they offer high rpm capability with less spring force. Two spring kits available. The .585" Sidewinder kit and the .650" Sidewinder kit. The .650" Sidewinder kit is required when installing the 618 cam.

### FITMENT

- X-Wedge® engines

### FEATURES AND BENEFITS

#### .585 Sidewinder Springs:

- Lower spring force results in reduced valve train noise, increased valve stability, and longer valve train component life
- Stock replacement in X-Wedge

#### .650 Sidewinder Springs:

- Manufactured from ultra clean high silicon kobe alloy wire then micro shot peened and nitrided
- Increased force for high rpm valve control

### KIT CONTENTS

- Valve keepers
- Springs
- Top collars
- Bottom collars
- 0.015" and 0.030" shims

### PART NUMBER

S&S® .585" Sidewinder® Valve Spring Kit.....	<b>106-0772</b>
S&S® .650" Sidewinder® Valve Spring Kit.....	<b>900-0212</b>



106-0772

S&S .585" Sidewinder® valve spring kit is ideal for stock rebuilds and for mild performance cams up to .585" lift.

### S&S® SIDEWINDER® VALVE SPRINGS SPECIFICATIONS

Lift	Installed Height	Seat Force	Force @ Max Lift	Max RPM
.585"	1.970"	80 lb.	245 lb.	5750
.650"	2.00"	136 lb	319 lb	6500

**REPLACEMENT PARTS ON PAGE 6-29**



S&amp;S®

# SINGLE BORE TUNED INDUCTION SYSTEM

## FITMENT

- S&S X-Wedge® engines

## FEATURES AND BENEFITS

- Bolt-on performance — over twice the filtering area over stock intake system
- Increases horsepower and torque across the rpm range using air column inertia and carefully timed gas dynamic pressure waves
- Smooth intake tract of carefully selected tuned lengths increases performance
- High flow washable and reusable cotton media provides performance, protection, and economy



### S&S SINGLE BORE TUNED INDUCTION SYSTEM KITS

Fitment	Fuel Delivery	Finish	Part No.
S&S X-Wedge	Single Bore	Chrome Runner and Red Filters	<b>170-0082</b>
<b>CTO</b>	Specify	Specify	<b>106-5337*</b>

\*Use the Configure to Order (CTO) part number to order different finish and filter color.

### REPLACEMENT PARTS ON PAGE 6-30



Billet adaptor brackets make single bore tuned induction compatible with a lot of different engines and motorcycles.



Washable nylon air filter covers are water resistant and filter out large debris, allowing the filter media to stop small dirt particles from getting into your engine

S&S Nylon Air Filter Cover

each ..... **106-0247**

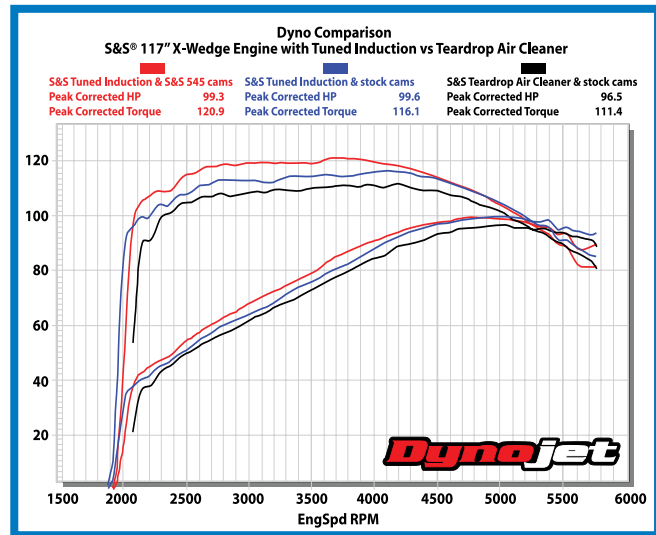
2 pack ..... **106-0248**



Renew the color of your air filter with an 8 oz. bottle of S&S Air Filter Oil. Choice of red or blue oil.

S&S Air Filter Oil, Red ..... **106-1163**

S&S Air Filter Oil, Blue ..... **106-1164**



S&S Throttle Body

58mm ..... **106-3960**

52mm ..... **106-3141**

### REPLACEMENT PARTS ON PAGE 6-31

PERFORMANCE PARTS

Parts for  
Twin Cam 96°/103°  
2007-2012

Parts for  
Twin Cam 88°  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Metric

Parts for  
Racing  
Products

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Tools & Shop  
Supplies

Parts for  
Dealer Services  
& Promo Items

Parts for  
Warranty &  
Company Policy

Parts for  
OEM Cross Reference  
Appendix & Index

## S&S® EFI WIRING HARNESS

The S&S custom EFI wiring harness was designed specifically for the installation of fuel injected S&S engines into stock or custom frames with up to 4" or less of backbone stretch.

### FITMENT

- Engines with Delphi® style VFI modules

### FEATURES AND BENEFITS

- Plugs directly into Delphi® style S&S VFI modules and stock Delphi modules used in late model Harley-Davidson® motorcycles
- Compatible with most stock and aftermarket components for Harley-Davidson Softail® models including:
  - Tip-over sensor
  - Oxygen sensors
  - Includes provisions for a knock sensor, which is utilized in the newest S&S VFI modules

### OPTIONS

Matching connector set specifically for the S&S EFI wiring harness. The set contains the correct connectors to allow custom builders to make tight, waterproof connections from electrical components to the S&S harness.

Set includes the following connectors and parts:

- Speedometer
- Headlight(s)
- Fuel gauge
- Left and right handlebar controls
- Indicator lights
- Front turn signals
- Extra DT and DTM replacement terminals and sealing plugs

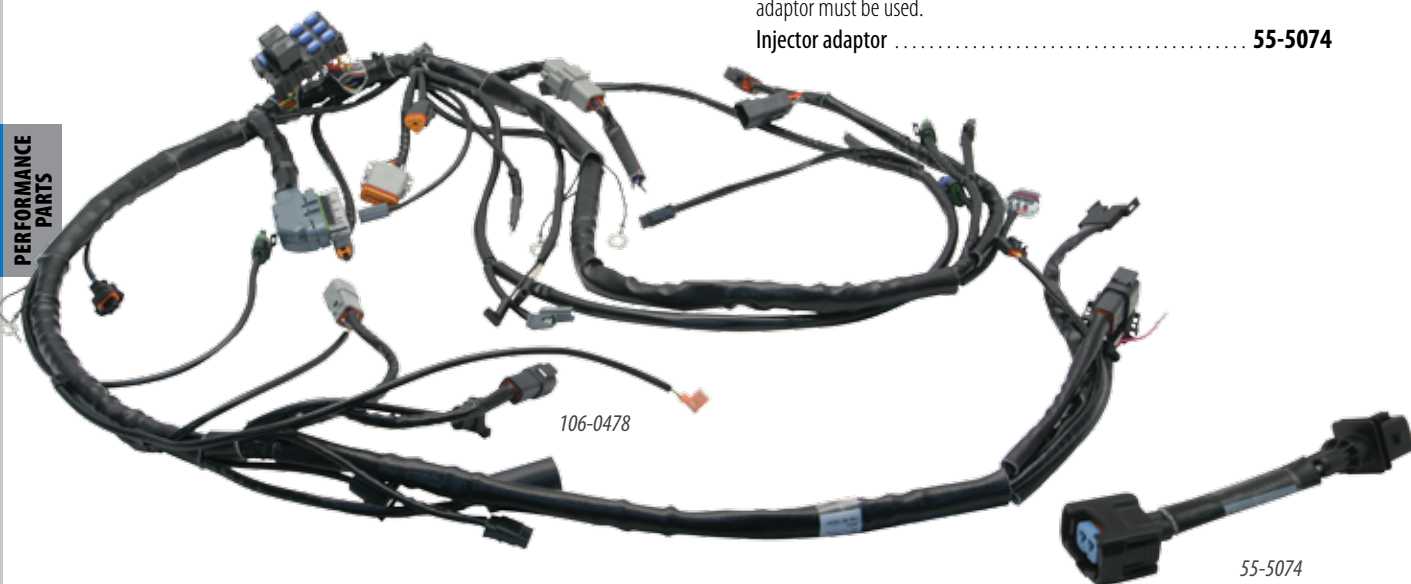
### PART NUMBERS

Custom Wiring Harness Kit ..... **106-0478**

Connector Set ..... **106-2857**

When connecting S&S T-Series engines to this EFI harness, a K-to-B style fuel injector adaptor must be used.

Injector adaptor ..... **55-5074**



## S&S® FUEL PUMP FOR FUEL INJECTED CUSTOM BIKES

Building a fuel injected custom bike can have its problems, and one that always comes up is finding a cool looking gas tank with a fuel pump in it. This fuel pump can help with that problem since it can be mounted in nearly any tank. Hollow mounting bolts secure the pump flange to the bottom of the tank and provide an outlet for wiring and pressurized fuel. A fiber media filter, placed at the lowest point in the tank prevents contaminants from damaging the fuel pump.

### PART NUMBER

S&S Fuel Pump Kit ..... **55-5089**

#### S&S® IN-TANK FUEL PUMP SPECIFICATIONS

Manufacturer	Pressure	Capacity	Current Draw
Walbro	4 Bar/58 Psi	45 Lt/Hr	5 Amps





**NOTE:** This is not a stock replacement pump for Harley-Davidson® motorcycles.



S&S® fuel pump kit contains fuel pump, inlet hose, an in-tank filter, mounting hardware, and instructions.

# CHAMPION® SPARK PLUGS

**Replace Your Spark Plugs For Maximum Performance and Fuel Economy.** S&S® now offers the same high quality Champion® spark plugs that we include with our engines for replacement in S&S X-Wedge engines. They are the correct heat range for all S&S engines and also fit 1977 and later Harley-Davidson® engines. Compatible with any ignition system.

CHAMPION® SPARK PLUGS			
Application	Size	2 Pack	Each
Twin Cam 88°/96°/103°™, Sportster®, X-Wedge® & S&S 4½" bore engines	12mm Long Reach	<b>55-1322</b>  (H-D® #32362-04) Champion® #RN12YC	<b>55-1320</b>  (H-D® #32362-04) Champion® #RN12YC
Evolution®, Vintage Models (SH-Series, Iron XL, KN-Series, P-Series) & S&S 3½" & 4" bore engines	14mm Long Reach	<b>55-1323</b>  (H-D® #32311-83, 32342-04) Champion® #RA84C	<b>55-1321</b>  (H-D® #32311-83, 32342-04) Champion® #RA84C



55-1322

## S&S® MOBIL 1® QUICK OIL CHANGE KIT THE OFFICIAL OIL OF S&S® CYCLE

S&S® recommends that you change your oil and filter every 2500 miles or six months, whichever comes first. And to make it easy, we offer S&S Quick Oil Change kits. These kits include four quarts of Mobil 1® V-Twin 20W-50 full synthetic motor oil, the official oil of S&S Proven Performance® engines, and a premium chrome S&S oil filter. The same oil and filters shipped with every assembled engine leaving S&S. Everything you need in one convenient package.

S&S® QUICK CHANGE OIL KITS	
Application	Chrome Filter
X-Wedge®	<b>31-4218</b>



Nothing but the best! The S&S Quick Oil Change kit is a convenient package that makes it easy to change your oil. Contains four quarts of Mobil 1® V-Twin 20W-50 synthetic oil and a premium S&S oil filter.

## S&S® OIL FILTERS

The most important thing you can do to maximize the life of your engine is to keep your oil clean. Friction wear particles and combustion byproducts are picked up by your motor oil. Regular oil changes are essential to keep contaminants from accumulating, but from one oil change to the next, your oil filter is your first line of defense against these wear causing particles. Make sure you have an S&S oil filter working for you.

### FEATURES AND BENEFITS

- Captures smaller particles than stock filters
- Low restriction to oil flow
- Direct bypass — *bypass oil does not pass over dirty filter media*
- Smaller diameter for easier installation
- Black or chrome finish

S&S® OIL FILTERS FOR X-WEDGE®					
Year Application	Micron Rating	Chrome		Black	
		each	12 pack	each	12 pack
X-Wedge®	10µ	<b>31-4104</b>	<b>310-0242</b>	<b>31-4103</b>	<b>310-0241</b>



S&S®

## INNER PRIMARY BEARING RACE

### FITMENT

- All 1991-'05 big twins
- 2006 Harley-Davidson® Softail® models

### FEATURES AND BENEFITS

- Will not "walk" on transmission mainshaft
- Prevents costly damage to mainshaft seal and output gear
- Simple to install
- Unique "stepped" design prevents the race from moving inward



USA 56-5089

The S&S inner primary bearing race positively eliminates bearing race movement that can cause costly damage to the transmission seal and output bearing. A must for high performance applications.

### PART NUMBER

S&S Inner Primary Bearing Race ..... 56-5089

### ANY JOB IS EASY WITH THE RIGHT TOOLS

S&S Inner Primary Bearing Race Installer, see page 9-10

S&S®

## CHROME PLATED BILLET TRANSMISSION SIDE COVERS FOR MECHANICAL AND HYDRAULIC CLUTCHES

S&S offers two chrome plated billet transmission side covers that fit our six speed transmissions, as well as stock and aftermarket left side drive transmissions for 1987-'06 big twins (except 2006 Harley-Davidson® Dyna® and all FXR models). The first version is cable actuated and is compatible with all stock and aftermarket cables. The second is a hydraulic version designed to convert a cable actuated clutch to hydraulic actuation without changing the clutch pressure plate, throw-out bearing, or pushrod. The hydraulic side cover has a piston diameter of 1.550", and is compatible with stock and aftermarket master cylinders with 1 1/4" diameter pistons.



### BILLET TRANSMISSION SIDE COVERS

Cable Actuated, Chrome ..... 106-4035

Hydraulic, Chrome ..... 106-3885

S&S chrome billet side covers fit 1987-'06 big twins except 2006 Dyna® and all FXR models. Available for cable and hydraulically actuated clutches.

**NOTE:** If replacing a Harley-Davidson® Screamin' Eagle® hydraulic side cover, a three piece pushrod with the thrust bearing on the right hand side must be used. (Oil slinger removal is required on stock H-D right-side pushrods.)

**REPLACEMENT PARTS ON PAGE 6-32**

S&S®

## TRANSMISSION TOP COVERS

The S&S transmission top cover is made of chrome plated die-cast or polished billet aluminum. So naturally, it looks great!

### S&S CHROME DIE CAST TRANSMISSION TOP COVER FOR 1991-'99 SOFTAIL® AND 1991-'00 FLT MODELS

This cover may be used as stock replacement for 1991-'99 Harley-Davidson® Softail® and 1991-'00 FLT Models.

56-5115



This chrome plated die-cast top cover can be used to replace top covers on 1991-'99 Harley-Davidson® Softail® and 1991-'00 FLT models.

**NOTE:** All reference to H-D® part numbers is for identification purposes only. We in no way are implying that any of S&S Cycle's products are original equipment parts or that they are equivalent to the corresponding H-D® part number shown.

**ORDER TOLL FREE 866-244-2673**



S&amp;S®

# 5-SPEED TRANSMISSION CASE

## FITMENT

- Modified 1989-'99 Harley-Davidson® Softail® chassis
- Similar aftermarket chassis

## OPTIONS

- Natural, wrinkle black powdercoat, polished finishes
- Additional parts available
- Polished billet trap door

## KIT CONTENTS

- Transmission case
- Bearing and seals
- Shift lever adjustment screw
- Shifter shaft guide
- All studs and dowel pins required (installed)
- Instructions



Bearing and seals are installed in case kits with bearings and seals.

56-1047

5-speed transmission case in wrinkle black powdercoat.

### S&S® 5-SPEED TRANSMISSION CASES FOR MODIFIED HARLEY-DAVIDSON® SOFTAIL® CHASSIS OR SIMILAR AFTERMARKET CHASSIS

Description	Natural	Black	Polished
Case w/Bearing & Seals	56-1044	56-1047	56-1076

### OPTIONAL ACCESSORIES FOR S&S® 5-SPEED TRANSMISSION CASES

Description	Part No.
Billet Trap Door Kit	56-1027

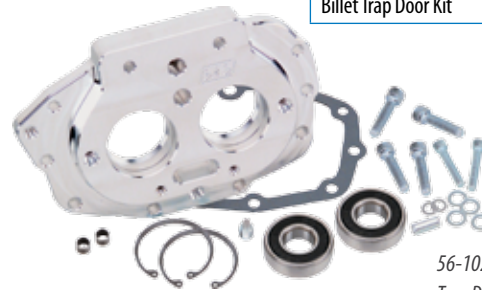
## NOTES:

A low contact-style countershaft gear must be used in this transmission case to match the 1980-'84 main drive gear required. Harley-Davidson® replaced low-contact gears with high-contact gears on 1994 international big twin models and 1995 U.S. models. Low and high contact gears may not be mixed.

S&S trap doors are of the 1987-'99 style. S&S recommends using this style trap door and end cover with the "ball and ramp" clutch actuator. The strength of the earlier, lever-type actuator is marginal for heavy clutch springs sometimes required in high-performance applications.

## EXTRA PARTS NEEDED TO INSTALL

The late transmission mounting plate (H-D® #47698-86B) must be used with these cases.



56-1027

Trap Door Assembly

S&amp;S®

# XW-R TRANSMISSION CASE KITS FOR X-WEDGE® ENGINES

This series of transmission cases is for the S&S X-Wedge engine in the Rolling Thunder Rubber Mounted Bagger or FXR style frames. Available in several styles for left side drive five and six-speed transmissions and five-speed right side drive transmissions. Cases are available in silver powdercoat, wrinkle black powdercoat, and polished finishes.

This case is a must for anyone who intends to use the Rolling Thunder Rubber Mounted X-Wedge frame to build a custom bike. Case kits come complete with hardware and mounting plate, and are compatible with stock and other five-speed gear sets.

### S&S® XW-R TRANSMISSION CASES FOR S&S X-WEDGE® ENGINES

Description	Black	Silver	Polished
Five Speed Left Side Drive	106-3376	106-3377	106-3375
Five Speed Right Side Drive*	106-3384	106-3385	106-3383

\* Machined to accept most aftermarket RSD Transmission kits that fit in stock transmission cases. Accommodates 250 rear tire.



## REPLACEMENT HARDWARE

Transmission Mounting Plate	
Silver .....	106-3098
Wrinkle Black Powdercoat .....	106-3097
Chrome .....	106-3096
Hardware Kit .....	106-3359



PERFORMANCE PARTS

Parts for  
Twin Cam 96"/103"  
2007-2012

Parts for  
Twin Cam 88"  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Metric

Racing  
Products

Tools & Shop  
Supplies

Dealer Services  
& Promo Items

Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index

S&S®

## HIGH PERFORMANCE CLUTCH

The S&S high performance clutch offers more gripping power with more friction surfaces and a larger friction centerline diameter — *this clutch is able to handle over 150 horsepower!* For competition applications, stronger pressure plate springs are available that increase the power handling capacity to nearly 200 horsepower. Fits in stock primary cases with only minor clearancing operations, which are not visible when the primary is assembled.

### FITMENT

- Available for 1991-'06 big twin models except 2006 Dyna®

### FEATURES AND BENEFITS

- Superior to competitively priced high performance clutches
- Fits in stock primary with minor modification
- With supplied springs, lever effort is slightly less than a stock Harley-Davidson® clutch, but handles engines up to 150 hp
- Optional high pressure clutch springs, available for competition applications, increases power handling capacity to nearly 200 hp
- Light duty springs for light clutch pull in less demanding stock street applications
- 11 friction plate, 10 steel plate design — **narrow friction rings increase contact diameter for increased torque capacity**
- Supplied with early style 66-tooth ring gear for increased strength and reduced tooth breakage

### OPTIONS

- Mechanical or hydraulic actuation
- 36 or 37-tooth sprocket
- Early style starter pinion gear required for 1994-'99 models to match 66-tooth ring gear supplied

### KIT CONTENTS

- Clutch assembly
- Special inner transmission mainshaft bearing race
- Installation hardware
- Instructions

*This S&S inner primary bearing race, which is included with the S&S clutch kits, positively will not move on the transmission mainshaft. This prevents damage to the mainshaft seal and the main output gear.*



56-5152



*The S&S high performance hydraulically actuated clutch is compatible with Harley-Davidson® hydraulic clutch, pushrod, and bearing.*

### S&S HIGH PERFORMANCE CLUTCH

#### Mechanical Actuation

With 36-Tooth Sprocket.....	<b>56-5150A</b>
With 37-Tooth Sprocket.....	<b>56-5151A</b>

#### Hydraulic Actuation

With 36-Tooth Sprocket.....	<b>56-5152A</b>
With 37-Tooth Sprocket.....	<b>56-5153A</b>

### OPTIONAL PARTS

Starter Pinion Gear — 9-Tooth.....	<b>56-1037</b>
High Pressure "Competition" Clutch Springs.....	<b>56-5106</b>
Low Pressure "Touring" Clutch Springs.....	<b>56-5109</b>
Loctite® Epoxy, .12 ounce.....	<b>51-9007-S</b>

*S&S high performance cable actuated clutch is compatible with stock and aftermarket cable style transmission side covers. See page 6-20 for S&S chrome billet transmission side covers.*



56-5150A

**REPLACEMENT PARTS ON PAGE 6-32**

# S&S® GATES® HIGH STRENGTH FINAL DRIVE BELTS

How many final drive belts have S&S engines broken? Yes, a lot of power can break things, so what's the solution? The solution is that we are offering stronger belts! S&S has teamed up with the Gates® Corporation, a leading manufacturer of power transmission belts, to offer a series of secondary drive belts for many popular v-twin models. These belts feature Gates' super strong X3N carbon cord material which is significantly stronger than the Aramid material used in many OEM final drive belts.

S&S final drive belts by Gates are available with 14mm pitch in 1½" and 1⅞" widths. See the chart below and match the width and number of teeth required for your vehicle. You can find this information in the vehicle service manual.



## ATTENTION CUSTOM BIKE MANUFACTURERS! SPECIAL ORDER BELTS FROM S&S® AND GATES®

Special belt sizes, private brand labeling, and assistance with belt drive design, are available to custom performance OEM's and aftermarket bike builders, through S&S. These products and services are available for licensed motorcycle manufacturers only, and a minimum order quantity may be required.

Drive belts with your company name imprinted on them are a perfect way to show off your brand. Any belt size currently available in the S&S catalog, as well as the special ordered sizes, can be specially branded. Minimum order quantities would apply.

Whether you're designing a completely new chassis, or simply need a replacement belt, S&S can help you find the belt you're looking for. Through the combined efforts of Gates and S&S, S&S can now provide customers with the technical assistance they need for designing new secondary belt drive systems. In addition, S&S can help you determine required tooth count for your existing chassis design, based on the pulley center-to-center distances and pulley tooth counts.

All belts have a 14mm tooth pitch, and are made of the super strong Gates Carbon X3N material. Belts are available in three standard widths of 1.125", 1.5" and 1.81" (30mm), but can be special ordered in nearly any width for a nominal charge. If you want a belt with a special tooth count, they are also available (see the special order chart for availability).

Contact your S&S Customer Support Representative for more information.

### SECONDARY DRIVE BELTS (14mm PITCH)

Teeth	1⅞" Wide	1½" Wide
125	106-0357	—
126	—	106-0348
127	—	106-0349
128	106-0358	106-0350
130	106-0359	106-0351
132	106-0360	106-0352
133	106-0361	106-0353
135	106-0362	106-0354
136	—	106-0355
139	106-0363	106-0356
149	106-1338	—
156	—	106-2827

### BELTS AVAILABLE BY SPECIAL ORDER (14mm PITCH)

Tooth Count	1.181" (30mm) Width*	1.25" Width*
125	●	
126	●	●
127	●	●
128	●	
130	●	
131	●	●
132	●	
133	●	
135	●	
136	●	●
137	●	●
139	●	
140	●	●
149	●	
150	●	●
151	●	●
152	●	●
156	●	

\*Minimum order required: 1.181" (30mm) – 16 belts; 1.25" – 17 belts.

PERFORMANCE  
PARTS

Parts for  
Twin Cam 96°/103°  
2007-2012

Parts for  
Twin Cam 88°  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Metric

Parts for  
Racing  
Products

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Tools & Shop  
Supplies

Parts for  
Dealer Services  
& Promo Items

Parts for  
Warranty &  
Company Policy

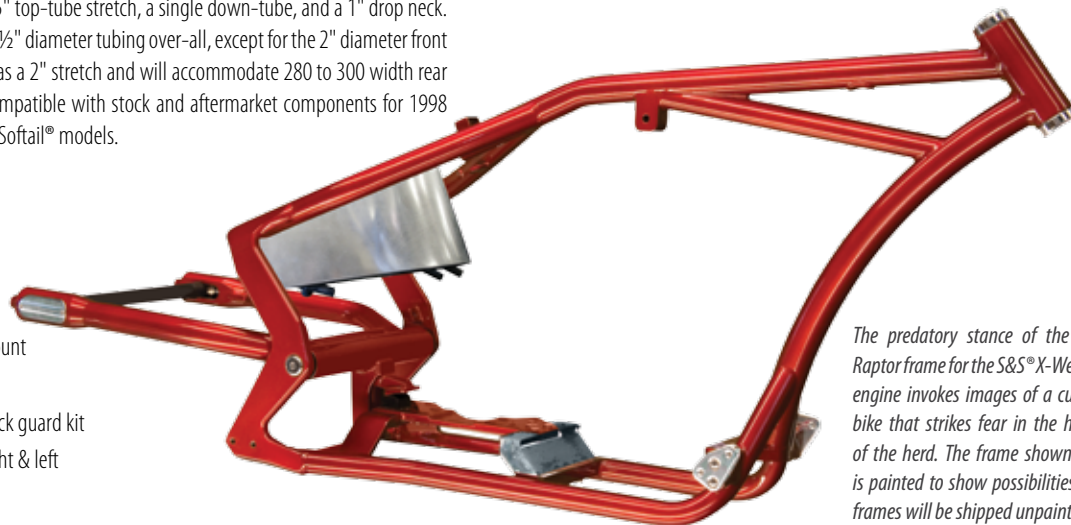
Parts for  
OEM Cross Reference  
Appendix & Index

## CHASSIS FROM DAYTEC®

The Daytec Raptor frame for X-Wedge is a right side drive, under-chassis shock design. The frame features 38° rake with 5" top-tube stretch, a single down-tube, and a 1" drop neck. This chassis is constructed of 1½" diameter tubing over-all, except for the 2" diameter front down-tube. The swing arm has a 2" stretch and will accommodate 280 to 300 width rear tires. The Raptor chassis is compatible with stock and aftermarket components for 1998 and earlier Harley-Davidson® Softail® models.

### KIT INCLUDES

- Frame
- Stealth swing arm
- Aluminum rear motor mount
- Front shock mount
- Polished stainless steel rock guard kit
- Forward adapter plate right & left
- Bump stop
- Pivot axle & bolt kit
- Pivot axle bearings (installed)
- Rear axle kit and axle block cover kit



*The predatory stance of the new Raptor frame for the S&S® X-Wedge® engine invokes images of a custom bike that strikes fear in the hearts of the herd. The frame shown here is painted to show possibilities, but frames will be shipped unpainted.*

### X-WEDGE® FRAME KIT BY DAYTEC®, UNPAINTED

Frame w/Oil Tank ..... **106-2644**

Oil Tank Kit ..... **106-2598**

## ROLLING THUNDER 200X FRAME FOR S&S® X-WEDGE® ENGINES

Everybody likes having a choice. That's why S&S offers this smokin' Rolling Thunder 200X frame for the X-Wedge engine. The rake of this frame is 34°, which keeps a narrow wheel base and allows for a tight nimble ride. The 2" diameter backbone has a mild radius and a 2" forward stretch, which provides a simple yet elegant profile. The under-chassis shock frame and swing arm includes a 1" hidden axle, and both stock and custom weld-on brake tabs to suit various build requirements. The 200X frame is constructed of the best quality DOM seamless tubing. Included with the 200X frame is a center fill oil tank with a 4-quart capacity that allows for a full size battery box. This frame positions the engine directly on center line, and the transmission is offset by 1", requiring a 1" primary spacer. The 200X is designed to accommodate a 200mm rear tire with a 1½" final drive belt.



### FEATURES AND BENEFITS

- 100% TIG welded
- .120" wall seamless DOM tubing
- CNC machined components
- Engine on frame center line
- Internal fork stop machined into 2½" neck
- Battery box dimensions 3½" wide x 7" long x 6½" high
- Compatible with stock or aftermarket drive train components for pre-1999 Harley-Davidson® Softail® models



*This frame is painted, but they come bare to facilitate the installation of weld-on tabs and any other custom fabrication required before painting.*

### KIT INCLUDES

- Swing arm (under-frame 1984-'99 style shock)
- Internal fork stop plate
- Splash guard
- Oil tank (4-quart) and mounting hardware/rubbers
- Pivot tube with stainless pivot bolts
- 1" axle and hardware
- Hidden aluminum axle covers
- Weld-on custom and stock brake tabs

### PART NUMBER

Frame Kit, Rolling Thunder, 200X

Unpainted, X-Wedge ..... **106-0811**



# SPECIAL ORDER ROLLING THUNDER FRAMES FOR X-WEDGE® ENGINES

If the Rolling Thunder 200X frame shown on the previous page isn't just what you had in mind, take a look at this! We now offer three special order frames with styles and options that should satisfy even the most particular bike builder.

Using Rolling Thunder's frame manufacturing expertise and designs from both Rolling Thunder and S&S, we are able to offer the highest quality frames for the X-Wedge at competitive prices. First, we have a special order version of the Rolling Thunder "under-chassis shock" 200X frame, for those who want to build a custom ride that is similar to a Harley-Davidson® Softail®. Second, a sporty rubber mount frame for bikes similar to an FXR. Finally, we offer a rubber mount touring frame for a bike like an FLT. These frame styles are set up as special order items and offer a number of options for tire size, transmission style, down-tube stretch, back-bone stretch, and rake. These special order frames will be drop-shipped directly from the Rolling Thunder factory to our customers.

## HERE'S HOW IT WORKS

When you order one of the part numbers below, you will have to choose from several options and specify several dimensions. For example, you can order an oil tank with the frame if you want a "tailor-made" or you can fabricate your own. You will also need to choose between Left Side Drive (LSD) with a maximum rear tire width of 200mm or Right Side Drive (RSD) with a maximum rear tire width of 250mm. RSD and oil tanks are extra cost options and will increase the final price of the frame package. The three frame styles have different ranges for rake, back-bone stretch, and down-tube stretch. You can select any values within the ranges shown for that particular style in the chart below. Once the order has been taken, the frame will be manufactured and will be shipped to you direct from the Rolling Thunder factory.



FLT Style

*Frames are shown painted, but are shipped unpainted to facilitate weld-on tabs and other custom fabrication required before painting. Shocks not included.*



*Frames are shown painted, but are shipped unpainted to facilitate weld-on tabs and other custom fabrication required before painting. Shocks not included.*

## SPECIAL ORDER X-WEDGE® FRAMES BY ROLLING THUNDER

Frame Style	Engine Mount	Oil Tank	LSD-200 tire / RSD 250 tire	Rake	Back-bone Stretch	Down-tube Stretch	Part Number
200X	Solid Mount	Optional	Choose	34° - 39°	0" - 6"	0" - 6"	<b>999-0009</b>
FLT Style	Rubber Mount	Optional	Choose	26° - 30°	0" - 4"	0" - 3"	<b>999-0010</b>
FXR Style	Rubber Mount	Optional	Choose	28° - 32°	0" - 4"	0" - 3"	<b>999-0011</b>

Parts for  
Twin Cam 96°/103°  
2007-2012

Parts for  
Twin Cam 88°  
1999-2006

Parts for  
Sportster & Buell  
1986-2012

Parts for  
Vintage Engines  
1926-1984

**PERFORMANCE  
PARTS**

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Metric

Racing  
Products

Tools & Shop  
Supplies

Dealer Services  
& Promo Items

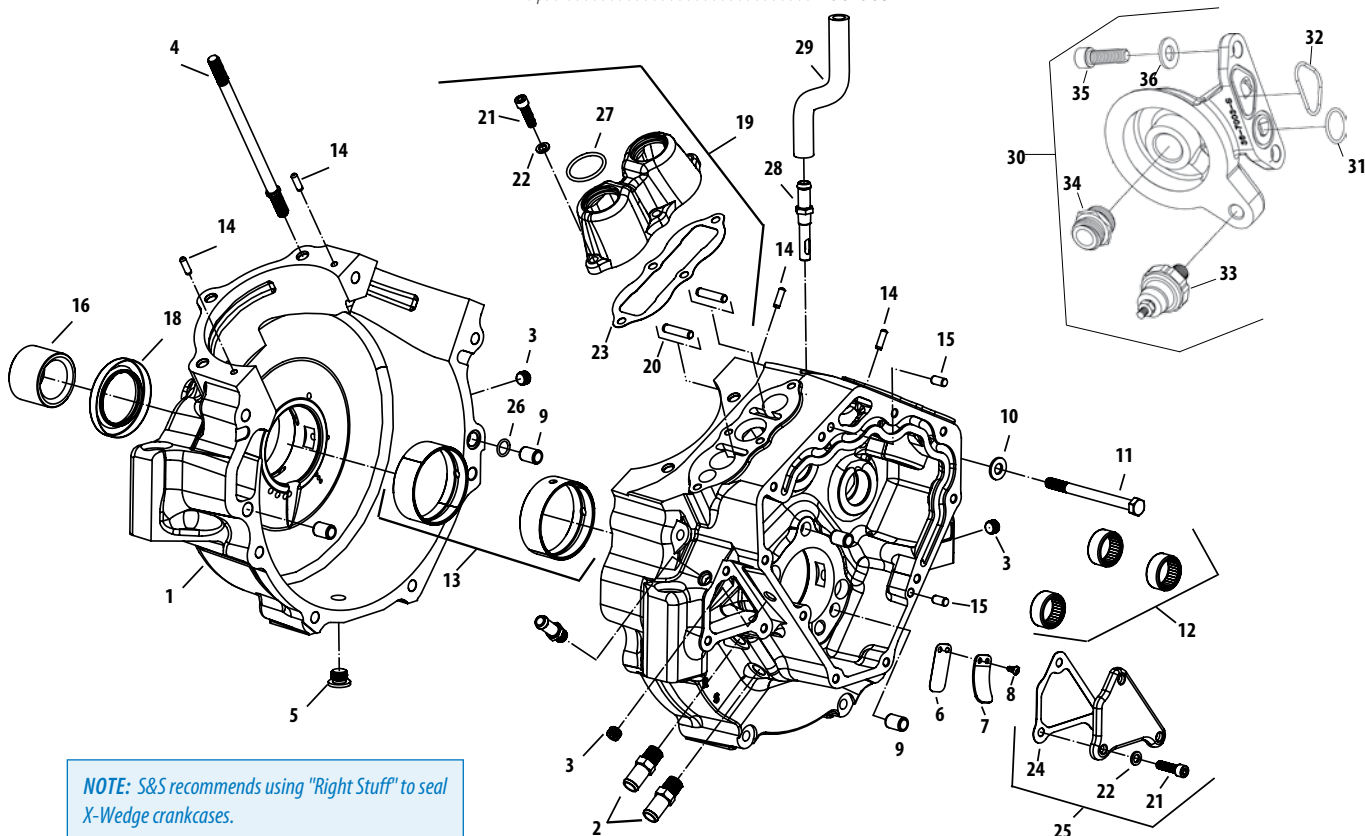
Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index

S&S®

## CRANKCASE REPLACEMENT PARTS FOR S&S® X-WEDGE® ENGINES

- |  |           |  |           |   |           |
|--|-----------|--|-----------|---|-----------|
| 1. Crankcase half.....                       | N/A       | 14. Dowel pin, .187" x .635".....                      | 50-8031   | 25. Cover, reed pocket                                |           |
| 2. Fitting, pipe, straight                   |           | 10 pack.....   | 106-0613  | Polished, X-Wedge.....                                | 106-0597  |
| 1/4-18 NPTF x 1.510 x 1/2, zinc.....         | 50-8158-S | 15. Dowel pin, 1/4" x 1/2".....                        | 50-8022   | Silver, X-Wedge.....                                  | 106-0598  |
| 3. Plug 1/8-27 NPT with taper                |           | 2 pack.....  | 50-8022-2 | Wrinkle black, X-Wedge.....                           | 106-0599  |
| each.....                                    | 50-8331   | 5 pack.....  | 50-8105   |   |           |
| 10 pack.....                                 | 50-1015   | 16. Spacer, charging system                            |           | 26. O-ring, oil feed line                             |           |
| 4. Stud, cylinder base, 6.68", black oxide   |           | 1.75" x 1.25".....                                     | 106-0736  | (-13), .437" I.D. x .565" O.D., Viton®                |           |
| 1984-'99 BT.....                             | 31-2321-S | 1.75" x 1.115".....                                    | 106-0737  | each.....   | 50-8008   |
| 8 pack.....                                  | 31-2321   | 17. Fitting, pipe, straight, male, chrome, steel,      |           | 10 pack.....  | 50-8078   |
| 5. Plug, magnetic, SH, 1/2-20, transmission  |           | 1/8-27 NPTF x 1.344" x .375".....                      | 50-8129-S | 27. O-ring, bottom, pushrod tube                      |           |
| crankcase drain plugs with o-ring.....       | 50-8335   | 10 pack.....   | 106-0617  | (-122), 1.112" I.D. Viton.....                        | 50-7964-S |
| 6. Reed, breather valve, X-Wedge             |           | 18. Left main bearing oil seal 1970-up BT              |           | 28. Fitting, hose, straight, 1/8-27                   |           |
| each.....                                    | 36-7031   | each.....  | 31-4010   | NPTFx.500.....  | 50-8218-S |
| 5 pack.....                                  | 106-0700  | 5 pack.....  | 31-4110   | 29. Hose, vent, breather, .375" x .625".....          | 106-3011  |
| 7. Stop, breather reed valve, X-Wedge        |           | 19. Tappet cover, set                                  |           | 30. Bracket, oil filter, X-Wedge                      |           |
| each.....                                    | 36-7032   | Polished, X-Wedge.....                                 | 106-0745  | Polished.....   | 106-0572  |
| 5 pack.....                                  | 106-0742  | Silver, X-Wedge.....                                   | 106-0746  | Silver.....   | 106-0573  |
| 8. Screw, BHS, 6-32 x 5/16", stainless steel |           | Wrinkle black, X-Wedge.....                            | 106-0747  | Wrinkle black, X-Wedge.....                           | 106-0574  |
| each.....                                    | 50-0060-S | 20. Pin, dowel, .250" x 1.125" (each).....             | 50-8287   | 31. O-ring, Viton, -017.....                          | 50-0466   |
| 10 pack.....                                 | 106-0725  | 10 pack.....   | 106-0615  | 32. O-ring, Viton, size -022 (each).....              | 50-8005   |
| 9. Pin, dowel, .438 diameter x .610.....     | 50-8177   | 21. Screw, SHCS, 1/4-20 x 7/8".....                    | 50-0025   | 10 pack.....  | 106-0682  |
| 4 pack.....                                  | 50-8177-4 | Bright zinc.....                                       | 106-0534  | 33. Switch, oil pressure, X-Wedge.....                | 106-0744  |
| 10 pack.....                                 | 50-8179   | Chrome (each).....                                     | 106-0727  | 34. Fitting, straight, 3/4-16 UNF 2a                  |           |
| 10. Washer, flat, 3/16 x 1/16 x 1/16.....    | 50-7034   | 10 pack.....   | 106-0727  | each.....   | 50-8197-S |
| 11. Screw, HHCS, 5/16-18 x 3/4", zinc.....   | 50-0011   | 22. Washer, flat, .260" x .425" x .060", chrome, steel |           | 5 pack.....   | 106-0618  |
| 12. Bearing, assembly, inner, needle, cam    |           | each.....  | 50-7017   | 35. Screw, SHC, 5/16-18 x 1, zinc.....                | 50-0101   |
| 1999-up BT.....                              | 31-4080   | 12 pack.....   | 50-7013   | 36. Washer, flat, 5/16 x 1/16 x 1/16, zinc, steel ... | 50-7034   |
| 13. Bearing, main journal, standard, plain   |           | 23. Gasket, tappet cover, X-Wedge.....                 | 37-0006   |   |           |
| each.....                                    | 34-8640-S | 10 pack.....   | 106-0633  | NOT SHOWN:  |           |
| 4 pack.....                                  | 106-0570  | 24. Gasket, reed pocket, X-Wedge (each).....           | 36-0097   | Crank position sensor.....                            | 106-0734  |
|  |           | 10 pack.....   | 106-0631  |   |           |



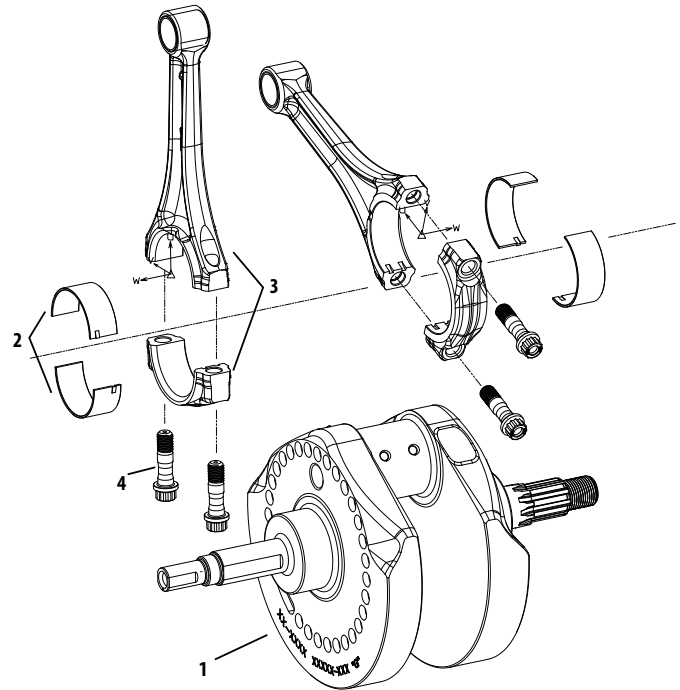
**NOTE:** S&S recommends using "Right Stuff" to seal X-Wedge crankcases.

**ORDER TOLL FREE 866-244-2673**

S&amp;S®

# CRANKSHAFT REPLACEMENT PARTS FOR X-WEDGE® ENGINES

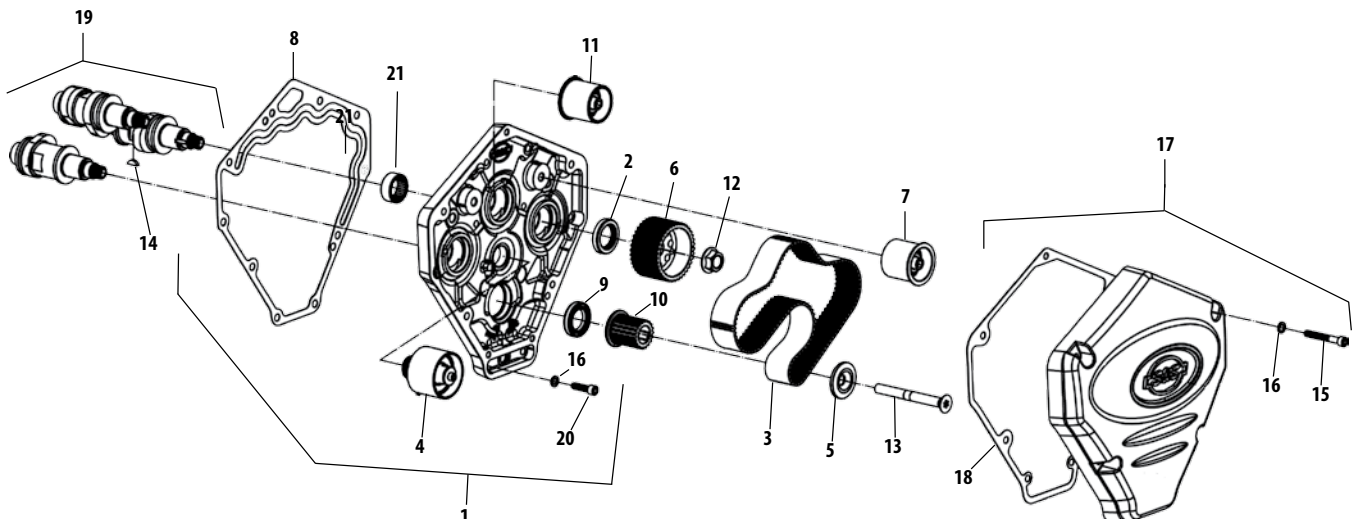
1. Crankshaft Assembly (includes #2, 3, 4)
  - All X-Wedge w/ 4 $\frac{3}{8}$ " stroke - X117/X132 ..... **106-0609**
  - All X-Wedge w/ 4 $\frac{1}{4}$ " stroke - X114/X121/X128 ..... **106-0608**
2. Bearing Insert (4 pack) ..... **106-0569**
3. Connecting Rod (each) - front or rear ..... **106-0583**
4. Bearing Cap Screw (each) ..... **50-0346-S**



# CAMS AND RELATED VALVE TRAIN COMPONENTS REPLACEMENT PARTS

REPLACEMENT  
PARTS

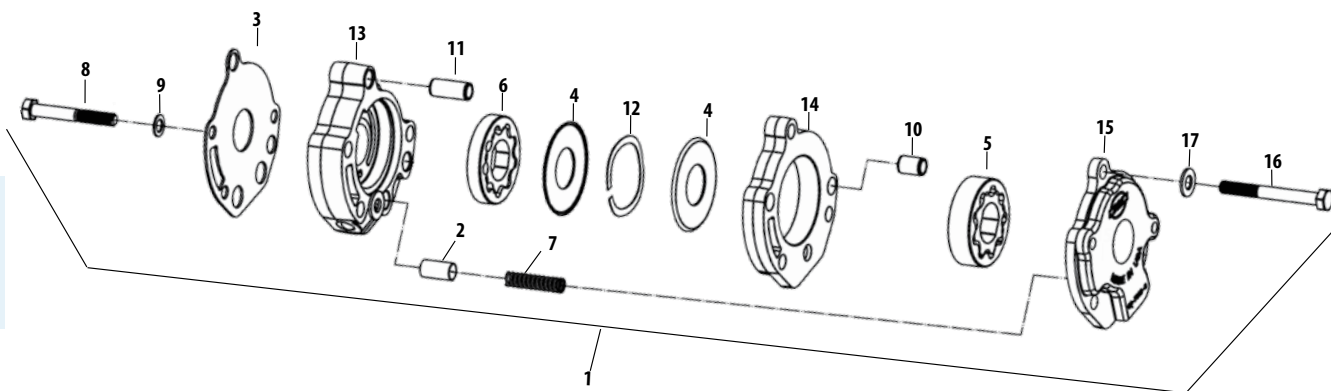
1. Cover, intermediate cam (includes gasket and hardware)
  - Polished ..... **106-0590**
  - Silver ..... **106-0591**
  - Wrinkle black ..... **106-0592**
2. Seal, cam cover/cam, .875" x 1.375" x .250", viton
  - each ..... **37-0230**
  - 3 pack ..... **106-0732**
3. Belt, cam drive, 127 tooth, 30mm ..... **106-0571**
4. Tensioner, belt, packaged, 30mm ..... **106-0751**
5. Washer, pinion sprocket, flanged ..... **106-0753**
6. Sprocket, cam, 38-tooth ..... **106-0740**
7. Pulley, front, idler, 1.50" x 30mm ..... **106-0696**
8. Gasket, intermediate cam cover ..... **37-0097**
9. Seal, pinion, dual lip, 22mm x 35mm x 7mm ..... **37-0044**
10. Sprocket, pinion, 19-tooth ..... **106-0741**
11. Pulley, rear, idler, 1.50" x 30mm ..... **106-0697**
12. Nut, flanged, 1/2-20 UNF-2B, steel ..... **106-0124**
- 10 pack ..... **106-0677**
13. Screw, torx, flat countersunk head, alloy steel 3/8-24 UNF x 3 1/2" ..... **50-0467**
- 5 pack ..... **106-0731**
14. Key, woodruff, .125" x .500" x .491", steel
  - each ..... **50-8223-S**
  - 5 pack ..... **50-1010**
  - 10 pack ..... **50-1105**
15. Screw, SHC, 1/4-20 x 1 3/4", chrome ..... **50-0488**
- 10 pack ..... **106-0726**
16. Washer, flat, .260" x .425" x .060", chrome, steel
  - each ..... **50-7017**
  - 12 pack ..... **50-7013**
17. Cover, belt drive
  - Chrome ..... **106-0587**
18. Gasket, belt drive cover ..... **106-0087**
19. Camshaft, kit, .548 ..... **106-0577**
- Camshaft, kit, .545 ..... **106-4444**
20. Screw, SHCS, 1/4-20 x 7/8" ..... **50-0025**
21. Bearing, assembly, outer ..... **106-1424**
22. Installation kit (Not Shown) ..... **36-0481**



S&S®

## OIL PUMP REPLACEMENT PARTS FOR X-WEDGE® ENGINES

- |   |          |  |           |
|---|----------|--|-----------|
| 1. Oil pump, kit, X-Wedge.....                        | 106-0680 | 10. Dowel pin, .437" diameter x .610" (each) .....                 | 50-8177   |
| 2. Valve, pressure relief, X-Wedge .....              | 106-0774 | 4 pack .....   | 50-8177-4 |
| 3. Plate, S&S oil pump, X-Wedge.....                  | 106-0694 | 10 pack .....  | 50-8179   |
| 4. Plate, divider, S&S oil pump, X-Wedge (each) ..... | 36-7005  | 11. Dowel pin, .437" x 1" (each) .....                             | 50-8284   |
| 2 pack .....  | 106-0693 | 10 pack .....  | 106-0614  |
| 5. Rotor, set, oil pump return, X-Wedge.....          | 106-0717 | 12. Spring, wave, 1.60" x 2" x .085" .....                         | 106-0773  |
| 6. Rotor, set, oil pump supply, X-Wedge .....         | 106-0722 | 13. Oil pump, body, supply, X-Wedge .....                          | 106-0679  |
| 7. Spring, relief valve, X-Wedge (each) .....         | 36-7041  | 14. Oil pump, body, return, X-Wedge (Includes dowel pin #11) ..... | 106-0678  |
| 5 pack .....  | 106-0738 | 15. Cover, oil pump, return, X-Wedge .....                         | 106-0596  |
| 8. Screw, HHC, 5/16-18 x 2 1/4 (each) .....           | 50-0462  | 16. Screw, HHC, GR5, 5/16-18 x 2 3/4 (10 pack) .....               | 106-0724  |
| 10 pack .....   | 106-0723 | 17. Washer, flat, .344" x .688" x .065", zinc, steel .....         | 50-7034   |
| 9. Washer, flat, zinc, .319" (each) .....             | 50-7026  |  |           |
| 10 pack .....   | 50-7028  |  |           |

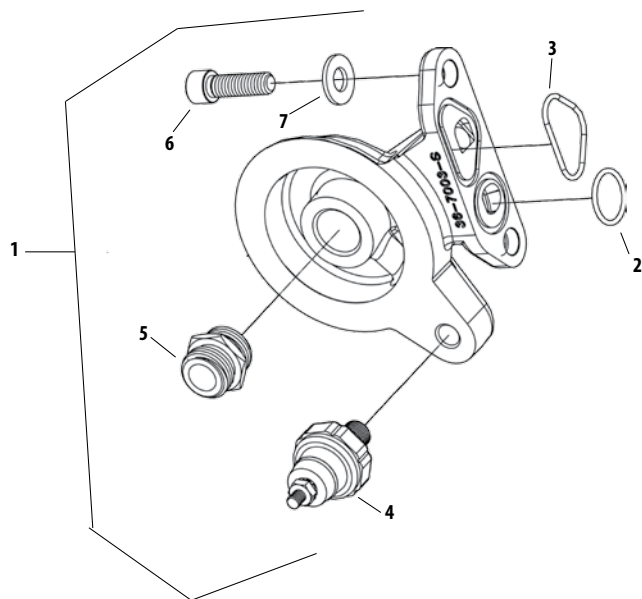


REPLACEMENT  
PARTS

S&S®

## OIL FILTER BRACKET REPLACEMENT PARTS FOR S&S® X-WEDGE® ENGINE

- |  |           |
|--|-----------|
| 1. Bracket, oil filter, X-Wedge                          |           |
| Polished .....   | 106-0572  |
| Silver .....   | 106-0573  |
| Wrinkle black .....                                      | 106-0574  |
| 2. O-ring, Viton, -017 .....                             | 50-0466   |
| 3. O-ring, Viton, size -022 (each) .....                 | 50-8005   |
| 10 pack .....  | 106-0682  |
| 4. Switch, oil pressure, packaged, X-Wedge .....         | 106-0744  |
| 5. Fitting, straight, 3/4-16 UNF 2a (each) .....         | 50-8197-S |
| 5 pack .....   | 106-0618  |
| 6. Screw, SHC, 5/16-18 x 1, zinc .....                   | 50-0101   |
| 7. Washer, flat, 5/16 x 1 1/16 x 1/16, zinc, steel ..... | 50-7034   |





S&amp;S®

# CYLINDER HEAD REPLACEMENT PARTS FOR X-WEDGE® ENGINES

These are direct replacements for the heads included on engines used by our original equipment manufacturers such as Big Dog Motor Cycle® and Big Bear Choppers®. The same heads are used in our X117 engines sold to our dealers and distributors.

1. Head, kit, .585", SW steel, X-Wedge  
Full polished ..... **106-0644**  
Silver ..... **106-0646**  
Wrinkle black ..... **106-0647**
2. Valve  
Intake, 2" x 4.450", @ 1.943" gauge ..... **90-2000**  
Exhaust, 1.605" x 4.428", @ 1.509" gauge ..... **90-2001**
3. Valve seat  
Intake, 2.000" ..... **90-2002**  
Exhaust, 1.605" ..... **90-2003**
4. Valve guide, intake/exhaust ..... **106-2162**
5. Shim Bottom Collar (for rebuild only)  
.015" (each) ..... **90-2086**  
5 pack ..... **50-7161**  
.030" (each) ..... **90-2087**  
5 pack ..... **90-2198**
6. Collar, bottom, valve spring, Sidewinder, w/seal, .585", steel (each) ..... **90-2281**  
4 pack ..... **106-0581**
7. Spring, valve, Sidewinder .585" ..... **106-0739**
8. Collar, top, valve spring, .585", steel ..... **90-2070**
9. Valve keeper (each) ..... **90-2094-S**  
8 pack ..... **50-7166**
10. Spring, kit, valve, .585", steel w/seal ..... **106-0772**
11. Head bolt, kit, S&S heads, w/washer, 12 pt 3/8-16 x 1.940" x .950" TD ..... **93-3028**
12. Washer, .515" x .900" x .150" ..... **50-0418-S**
13. Gasket, exhaust, stainless steel (each) ..... **106-5029**  
10 pack ..... **93-1072**
14. Exhaust port stud 3/16" x 1.7" (each) ..... **50-0493**  
5 pack ..... **50-1028**
15. Screw, SHCS, 5/16-18 x 1", zinc ..... **16-0136-S**
16. Bolt, mounting, HH, grade 5, 5/16-18 x 1", zinc  
each ..... **50-0108**  
20 pack ..... **50-0155**
17. Washer, flat, .344" x .688" x .065", zinc ..... **50-7034**
18. Flange, manifold, X-Wedge (each) ..... **16-0150**  
4 pack ..... **106-0619**
19. Seal, manifold, 2.060" x 2.285" x .0240",  
each ..... **16-6601**  
10 pack ..... **106-0676**
20. Sensor, kit, knock, IST, w/o bracket ..... **55-1096**
21. Sensor, temperature, cylinder head, 4 1/8" ..... **55-1014**
22. Gasket, head, .043", graphite  
4 1/8" (each) ..... **93-1130**  
10 pack ..... **106-0626**  
4 1/4" ..... **93-1131**  
4 3/8" (each) ..... **93-1132**  
10 pack ..... **106-0627**
23. O-ring, (-220), 1.375" ID x 1.625" OD, viton  
each ..... **50-8245-S**  
5 pack ..... **50-8245**
24. Pushrod cover, set, X-Wedge ..... **106-0698**
25. Stud, 3/16-24, 7/16-14 x 2.44" (each) ..... **50-0497**  
4 pack ..... **106-0743**
26. Retainer, alignment, rocker arm support,  
Front ..... **106-0730**  
Rear ..... **106-0730**
27. Rocker arm, set, X-Wedge ..... **106-0716**
28. Nut, Lock, HH, Gr8, 3/16-24 x 1 1/4", Zinc Plated, Steel  
each ..... **106-1749**  
5 pack ..... **106-2940**
29. Washer, flat, .344" x .688" x .065", zinc ..... **50-7034**
30. O-ring, bottom, injector, .310" ID x .580" OD ..... **50-8265-S**
31. Fuel injector, assembly, style B  
31.3lbs/hr@58psi ..... **55-5005**
32. O-ring, top, injector, .290" ID x .570" OD ..... **50-8264-S**
33. Insulator, hold down, fuel injector (each) ..... **106-1303**  
10 pack ..... **106-1616**
34. Clamp, front, hold-down, fuel injector ..... **106-0578**
35. Clamp, rear, hold-down, fuel injector ..... **106-0580**
36. Screw, SHC, 1/4-20 x 7/8, zinc ..... **50-0025**
37. Valve, bleed, 1/16-27 NPT ..... **106-0755**
38. Fuel line, cut to size, 3/16" x 12", black, rubber  
each ..... **106-0159**  
5 pack ..... **106-0620**
39. Fuel line, cut to size, 3/16" x 2.250", black, rubber  
each ..... **106-0157**  
5 pack ..... **106-0621**
40. Clamp, Hose, Stepless® Ear, 15.3mm ..... **106-2250**
41. Fitting, hose, tee, 3/16", black, glass filled, nylon  
each ..... **106-0409**  
5 pack ..... **106-0616**

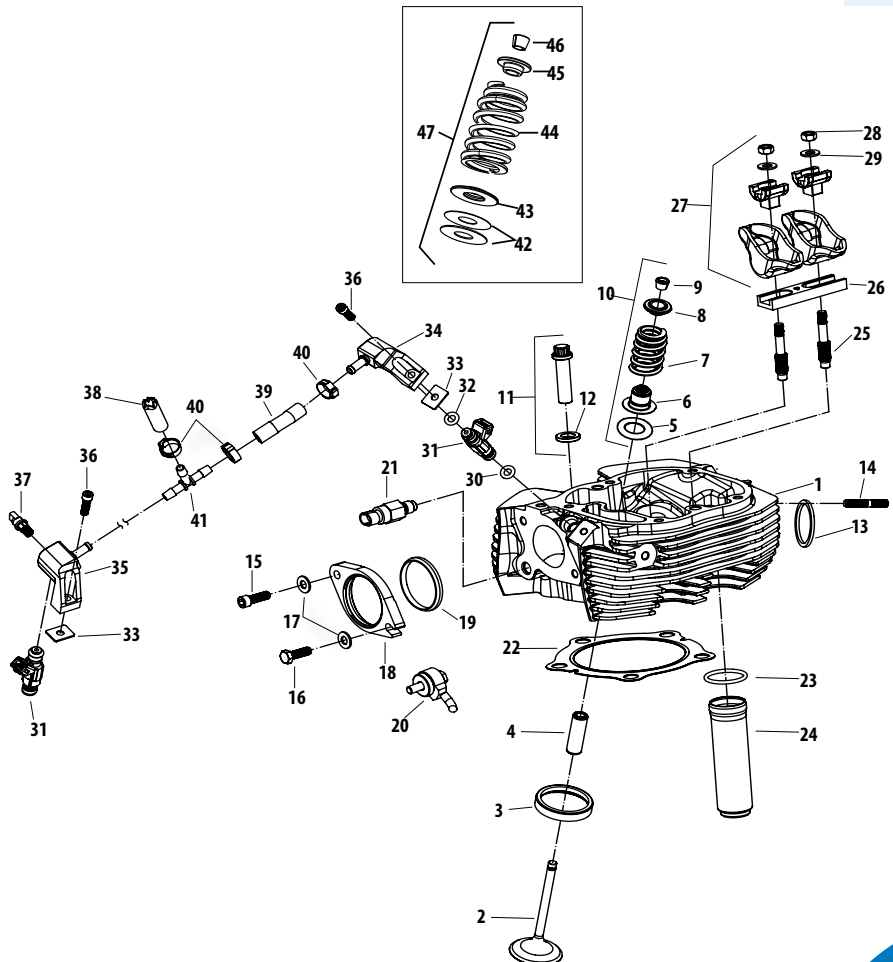
## .650" LIFT SIDEWINDER® VALVE SPRINGS

42. Valve Spring Shim  
.015" (each) ..... **500-0013**  
.030" (each) ..... **500-0014**
43. Collar, Bottom, Steel (each) ..... **106-3827**
44. Spring, Valve .650" (set of 4) ..... **106-5927**
45. Collar, Top, Steel ..... **106-5690**
46. Valve Keeper  
each ..... **90-2094-S**  
8 pack ..... **50-7166**
47. Valve spring kit  
.650" lift Sidewinder® ..... **900-0212**

### GASKET KITS

	Bore Size	Part No.
Top End Rebuild Kit	4 1/4"	<b>90-9701</b>
	4 1/8"	<b>106-1262</b>
Complete Engine Rebuild Kit	4 1/8"	<b>106-1030</b>
	4 1/4"	<b>106-1029</b>
	4 3/8"	<b>106-1031</b>

## .650" LIFT SIDEWINDER® VALVE SPRINGS



VISIT US AT WWW.SSCYCLE.COM

Parts for  
Twin Cam 96°/103°  
2007-2012

Parts for  
Twin Cam 88°  
1999-2006

Parts for  
Evolution®  
1984-1999

Parts for  
Sportster® & Buell®  
1986-2012

Parts for  
Vintage Engines  
1964-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Metric

Racing  
Products

Tools & Shop  
Supplies

Dealer Services  
& Promo Items

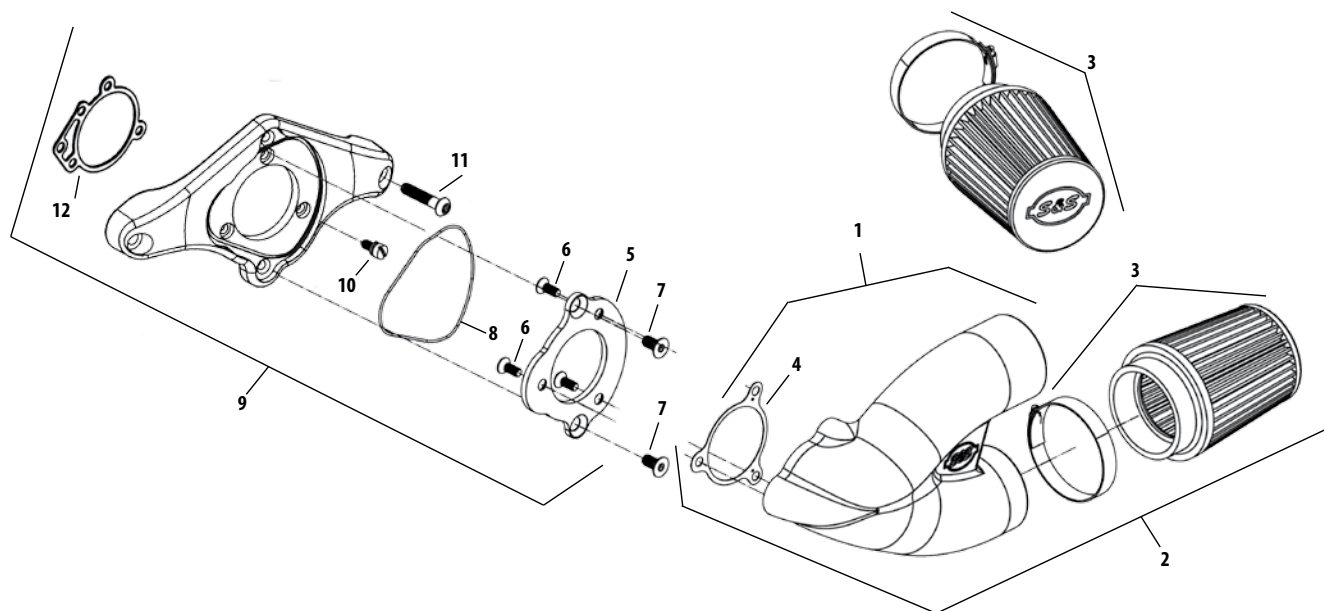
Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index

S&S®

## SINGLE BORE TUNED INDUCTION SYSTEM REPLACEMENT PARTS

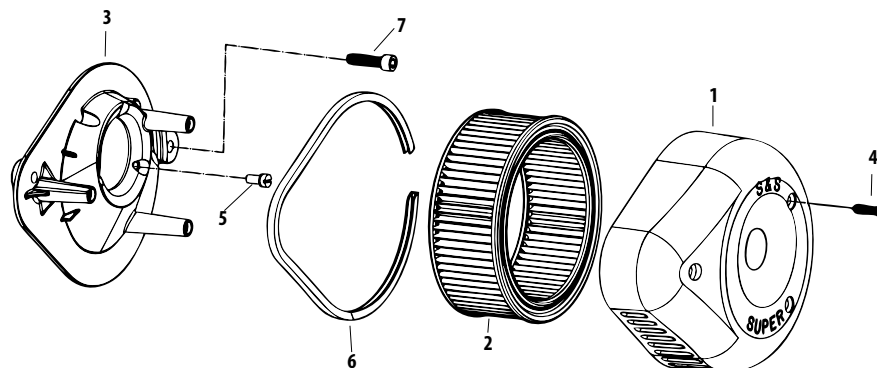
- |   |   |   |
|---|---|---|
| 1. Tuned Intake Kit, 2.19" Single Bore      | 4. Gasket, Intake – Adapter Plate                                   | 10. Backplate Screw                                   |
| Natural..... <b>106-4965</b>                | 2.19" Single Bore Tuned Intake ..... <b>17-1022</b>                 | LSHC Black Oxide (X-Wedge Only) ..... <b>106-0817</b> |
| Wrinkle Black ..... <b>106-4966</b>         | 5. Plate, Adapter, 2.19" Single Bore Tuned Intake                   | 11. Screw, Button Head Cap Screw, 3/16-18 x 1 1/2"    |
| Chrome Plated ..... <b>106-4967</b>         | Chrome Steel..... <b>17-1014</b>                                    | Grade 5, Chrome (each)..... <b>50-0309-5</b>          |
| 2. Tuned Intake Assembly, 2.19" Single Bore | 6. FHSC 1/4-20 x 3/8" (each) ..... <b>50-0433</b>                   | 2 pack ..... <b>50-1078</b>                           |
| Natural..... <b>106-4968</b>                | 3 pack ..... <b>50-1071</b>   | 12. Gasket, Backplate (each)..... <b>106-1724</b>     |
| Wrinkle Black ..... <b>106-4969</b>         | 7. FHSC 5/16-18 x 3/4" (each) ..... <b>50-0432</b>                  | 10 pack ..... <b>106-2328</b>                         |
| Chrome Plated ..... <b>106-4970</b>         | 2 pack ..... <b>50-1070</b>   | 13. Filter oil, 8oz. bottle (N/S)                     |
| 3. Air Filter, with Clamp                   | 8. O-Ring, Adapter Plate Bracket                                    | Red..... <b>106-1163</b>                              |
| Stainless Cap – Conical – 2 3/4" I.D. x 4"  | 3 3/8" O.D. x 3 1/2" I.D. 1/16 CS, Viton® (each) ... <b>50-0446</b> | Blue ..... <b>106-1164</b>                            |
| Red (each) ..... <b>17-1020</b>             | 5 pack ..... <b>50-1083</b>   |   |
| Blue (each)..... <b>17-1023</b>             | 9. Bracket Kit, S&S X-Wedge® ..... <b>106-4972</b>                  |   |



S&S®

## TEARDROP AIR CLEANER REPLACEMENT PARTS FOR S&S® X-WEDGE®

- |  |  |
|--|--|
| 1. Air Cleaner Cover                                 |  |
| Chrome, noise reduction ..... <b>106-1438</b>        |  |
| 2. Element, pleated ..... <b>106-4722</b>            |  |
| 3. Backplate SBFFI..... <b>106-0568</b>              |  |
| 4. Screw, oval 1/4-20 x 1 (each)..... <b>50-0072</b> |  |
| 10 pack..... <b>50-0094</b>                          |  |
| 5. Backplate screw, Zinc Plated                      |  |
| each..... <b>106-2084</b>                            |  |
| 10 pack..... <b>106-2105</b>                         |  |
| 6. Seal, backplate, neoprene, ..... <b>106-1667</b>  |  |
| 7. Screw, SHC, 3/16-18 x 1 1/4" ..... <b>50-0121</b> |  |



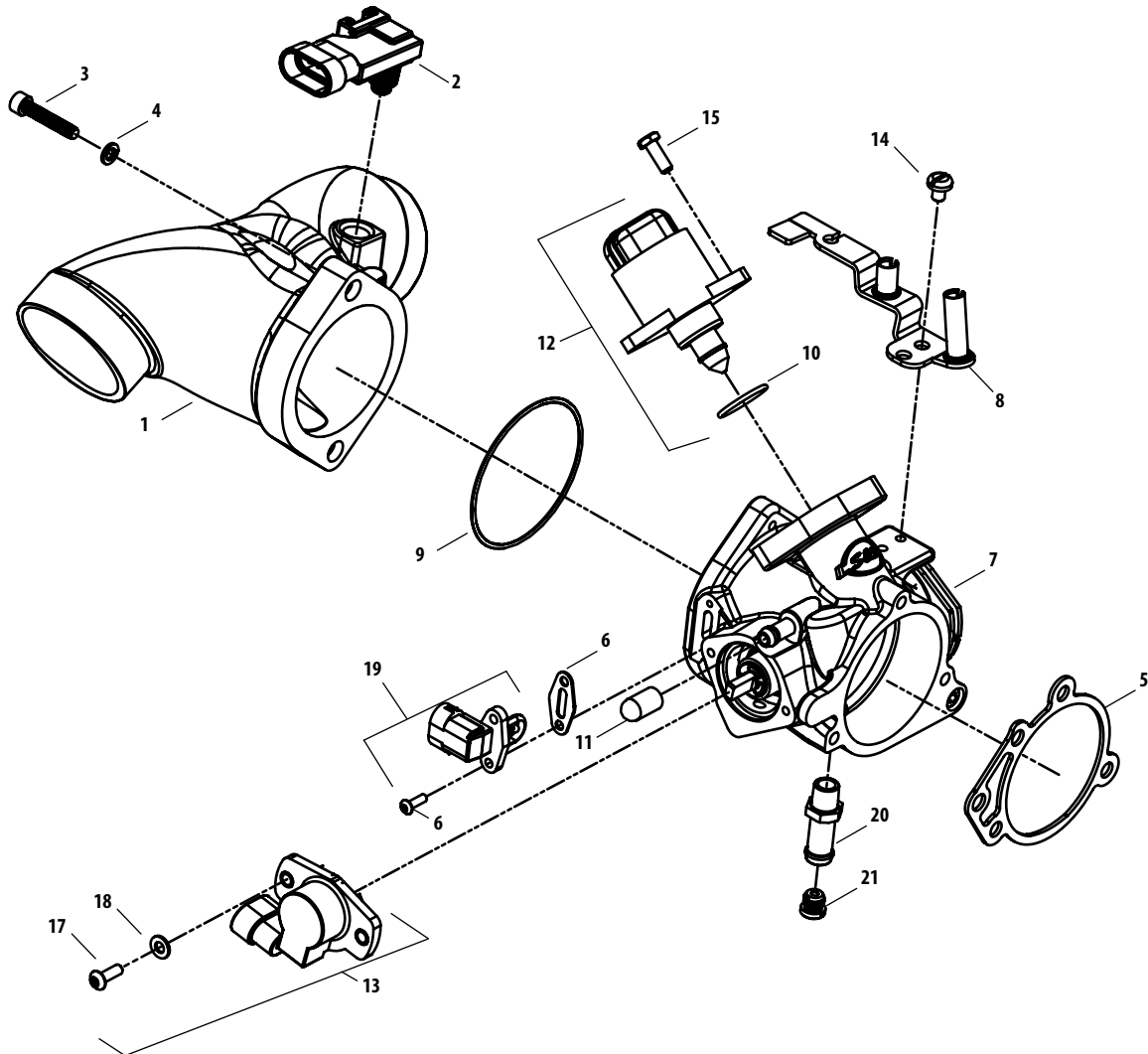
**X-WEDGE® NOISE REDUCTION AIR CLEANER**

Chrome..... **106-1438**

S&amp;S®

# THROTTLE BODY AND RELATED REPLACEMENT PARTS — FOR X-WEDGE® ENGINES

- |   |   |  |
|---|---|--|
| 1. Manifold, SBEFI, 2 1/8", X-Wedge<br>Natural ..... <b>106-0674</b><br>Polished ..... <b>106-0675</b>                                | 8. Guide, throttle cable, w/hardware, X-Wedge<br>..... <b>106-0634</b>                                  | 17. Screw, torx, m4 x 12mm, zinc, steel (each) . <b>50-0358-S</b><br>10 pack ..... <b>50-1056</b>  |
| 2. Sensor kit, map, IST, w/VOES fitting ..... <b>55-1037</b>  | 9. O-ring, (-036), 2.364" id x 2.504" od, nitrile<br>..... <b>50-7967-S</b>                             | 18. Washer, flat, 4mm x 9mm x .9mm, stainless steel<br>each ..... <b>50-7145-S</b><br>10 pack ..... <b>50-1057</b>                       |
| 3. Screw, SHSC, 10-24 x 1" (each) ..... <b>50-0359-S</b><br>10 pack ..... <b>50-1063</b>  | 10. O-ring, (-018) .739" id x .879" od x .070, viton<br>..... <b>50-8149-S</b>                          | 19. Sensor, kit, temperature, intake air ..... <b>55-5041</b>  |
| 4. Washer, lock, .200" x .334" x .047", zinc, steel<br>..... <b>50-7000</b>   | 11. Cap, canister purge fitting (each) ..... <b>50-8266-S</b><br>5 pack ..... <b>50-1062</b>            | 20. Fitting, hose, straight, 1/8-27 NPTF x .375",<br>w/ 5/16 T, zinc, steel (each) ..... <b>106-2981</b><br>5 pack ..... <b>106-3546</b> |
| 5. Gasket, backplate, Super E & G<br>52mm (each) ..... <b>106-1724</b><br>10 pack ..... <b>106-2328</b><br>58mm ..... <b>106-4662</b> | 12. Motor, kit, idle air control, EFI ..... <b>55-5085</b>  | 21. Jet, Main, Series 72, .100" (each) ..... <b>11-4100</b><br>5 pack ..... <b>11-7250</b>   |
| 6. Gasket, Air Temperature Sensor, S&S® VFI<br>..... <b>16-5009-S</b>   | 13. Sensor, kit, throttle position, VFI ..... <b>55-5058</b>  |  |
| 7. Throttle body, assembly, single bore, w/tps, natural<br>52mm ..... <b>106-3141</b><br>58mm ..... <b>106-3960</b>                   | 14. Screw, SLTD, PH, 10-24 x 1/4 (each) ..... <b>50-0041</b><br>10 pack ..... <b>50-0062</b>            |  |
|   | 15. Screw, 10-24 x .500 trimmed HXHD m/s<br>each ..... <b>50-0356-S</b><br>10 pack ..... <b>50-1060</b> |  |
|   | 16. Screw, torx, m3 x 10mm, zinc, steel ..... <b>50-0357-S</b>  |  |


REPLACEMENT  
PARTS

Parts for  
Twin Cam 96/103  
2007-2012

Parts for  
Twin Cam 88  
1999-2006

Parts for  
Evolution  
1984-1999

Parts for  
Sportster & Buell  
1986-2012

Parts for  
Vintage Engines  
1926-1984

Parts for  
X-Wedge®  
2007-2012

Parts for  
Victory® Off-road  
& Metric

Racing  
Products

Tools & Shop  
Supplies

Dealer Services  
& Promo Items

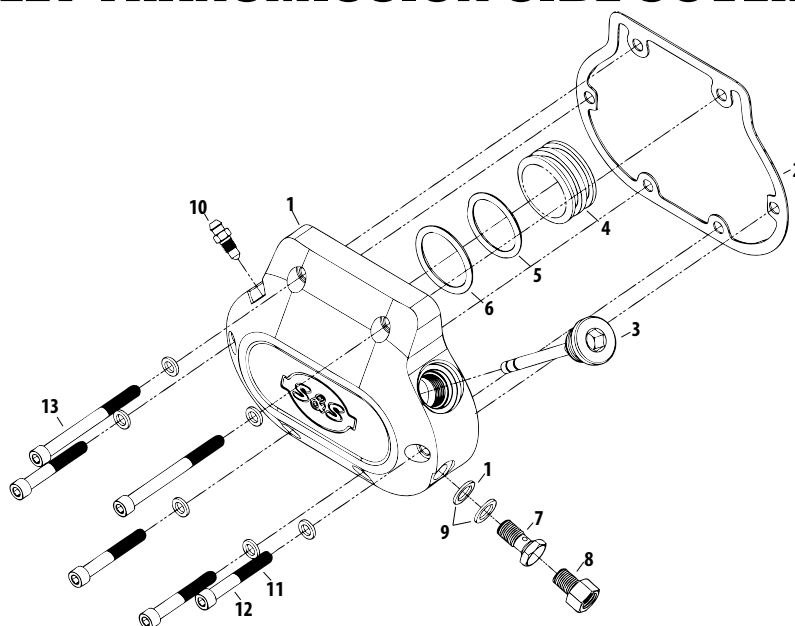
Warranty &  
Company Policy

OEM Cross Reference  
Appendix & Index

S&S®

## CHROME PLATED BILLET TRANSMISSION SIDE COVER REPLACEMENT PARTS

1. Hydraulic Clutch Side Cover (Chrome Billet) ..... 106-3885  
Cable Actuated (Chrome Billet) ..... 106-4035
2. Gasket Side Cover (each) ..... 56-5111-S  
10 pack ..... 56-5111
3. Dipstick Assembly (H-D® #37071-87, 37075-87) ..... 56-5132
4. Piston, Hydraulic Clutch (Billet) ..... 56-1303
5. O-ring, 1 1/4 ID x 1/8 CS, Buna-N 70 (each) ..... 50-8283-S  
10 pack ..... 50-1099
6. O-ring, 1 1/4 ID x 1/8 CS, Viton ..... 50-8282-S
7. Banjo Bolt 3/8-24 x 3/4 ..... 50-0426-S
8. Adapter, Hydraulic Clutch Line ..... 56-5198
9. Crush Washer, Copper .400 ID x .590 OD x .050 ..... 50-0423-S
10. Valve, Bleed Fitting, 1/4-28 ..... 50-0498
11. Washer, Flat .260 x .420 x .06 Chrome ..... 50-8451-S
12. Screw, Cap Hex SH 1/4-20 UNC x 1.75 Zinc ..... 50-0010-S
13. Screw, Cap Hex SH 1/4-20 UNC x 2.75 Zinc ..... 50-0459



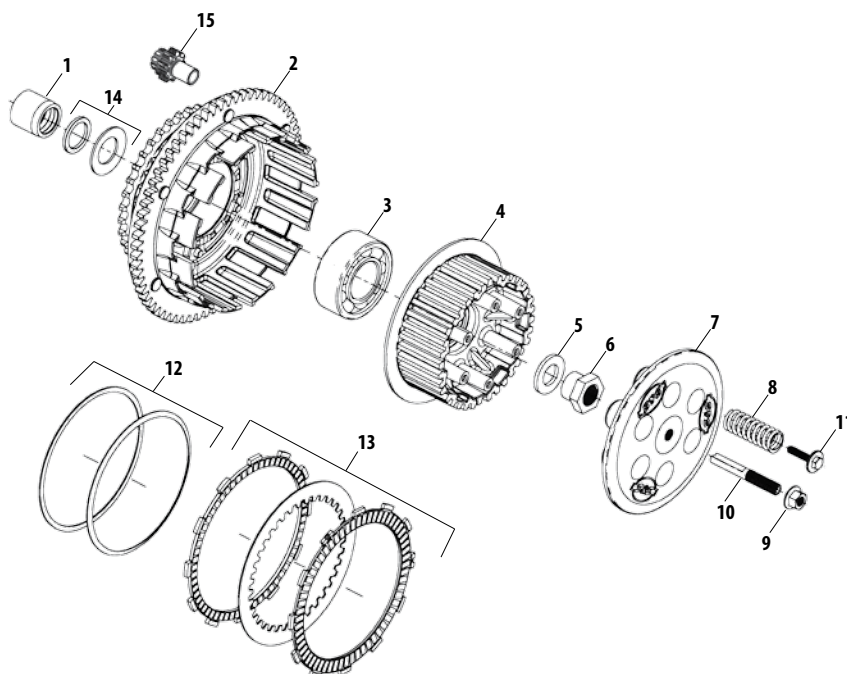
S&S®

## HIGH PERFORMANCE CLUTCH REPLACEMENT PARTS

1. Race, inner primary bearing, 5/8 speed main shaft  
All 1991-'05 BT and 2006 Harley-Davidson® Softail® models  
..... 56-5089
2. Basket,  
Clutch, 36-tooth ..... 56-5081  
Clutch, 37-tooth ..... 56-5082
3. Bearing, clutch (basket to hub) ..... 56-5102
4. Hub, clutch ..... 56-5075
5. Washer, thrust, 19.5 mm I.D. x 35.6 mm O.D. .... N/A
6. Nut, mainshaft, clutch hub, 3/4-18 UNS-2B ..... N/A  
(Recommended early style mainshaft nut H-D® #37496-84)  
(Recommended late style mainshaft nut H-D® #37496-90)
7. Plate, pressure - clutch  
Mechanical (3-piece pushrod actuated) ... 56-5076  
Hydraulic (1-piece pushrod actuated) ..... 106-3147
8. Spring, pressure plate, clutch  
Light duty, 334 lbs. (6 pack) ..... 56-5109  
Standard, 370 lbs. .... 56-5105-S  
Heavy duty, 408 lbs. (each) ..... 56-5106-S  
6 pack ..... 56-5106
9. Nut, flange, M10 x 1.25" ..... 50-8411
10. Screw, clutch adjuster, M10 x 1.25" ..... 50-8414
11. Bolt, special, M6 x 30, w/washer ..... 50-8413-S
12. Jutter spring with seat ..... 56-5110
13. Clutch pack, 11 frictions, 10 steels ..... 56-5085-S
14. Kit, shim, clutch inner race ..... 56-5090  
Shim, 5/8 speed main shaft  
1.300" O.D. x .960" I.D. x .0075" (36 gauge) .. 56-5092-S  
1.300" O.D. x .960" I.D. x .0150" (28 gauge) .. 56-5093-S  
1.300" O.D. x .960" I.D. x .0240" (24 gauge) .. 56-5094-S  
1.300" O.D. x .960" I.D. x .0470" (18 gauge) .. 56-5095-S

### OPTIONAL:

15. Pinion Gear ..... 56-1037
16. Loctite®, fast cure epoxy .12 ounce (Not Shown) . 51-9007-S



REPLACEMENT PARTS